University of Santa Clara

Catalogue

1916-1917

SANTA CLARA, CALIFORNIA

MAY, 1916

SENIOR HALL, UNIVERSITY OF SANTA CLARA, LOOKING SOUTH

University of Santa Clara

CATALOGUE

1916-1917

SANTA CLARA, CALIFORNIA

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The Corporate Title of the University is

THE PRESIDENT AND BOARD OF TRUSTEES OF SANTA CLARA COLLEGE

BOARD OF TRUSTEES

WALTER FRANCIS THORNTON, S. J.
President

JOSEPH WILLIAM RIORDAN, S. J.
Secretary and Treasurer

ALOYSIUS VINCENT RAGGIO, S. J.

JEROME SIXTUS RICARD, S. J.

RICHARD HENRY BELL, S. J.

WILLIAM HENRY CULLIGAN, S. J.

CHARLES M. LORIGAN, Esq.

EXECUTIVE BOARD

THE PRESIDENT JOSEPH WILLIAM RIORDAN, S. J.

CHARLES M. LORIGAN, Esq.

Consulting Attorney

CHARLES M. LORIGAN, Esq.

San Jose, Cal.

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CHARLES M. LORIGAN, Esq.

Consulting Attorney

CHARLES M. LORIGAN, Esq.

San Jose, Cal.

UNIVERSITY OF SANTA CLARA

To be filled out by school or college authorities only.

Full name of Applicant: _____ Age: _____

Post Office Address: _____

College or course proposed in this University; degree desired; date of proposed graduation: _____

I. Year 19____-19____ _____ Name of Institution

Subjects taken including subjects deficient or incomplete	No. of Weeks	Periods Per Week*	Grade 1st Term	Grade 2nd Term

II. Year 19____-19____ _____ Name of Institution

Subjects taken including subjects deficient or incomplete	No. of Weeks	Periods Per Week*	Grade 1st Term	Grade 2nd Term

III. Year 19____-19____ _____ Name of Institution

Subjects taken including subjects deficient or incomplete	No. of Weeks	Periods Per Week*	Grade 1st Term	Grade 2nd Term

IV. Year 19____-19____ _____ Name of Institution

Subjects taken including subjects deficient or incomplete	No. of Weeks	Periods Per Week*	Grade 1st Term	Grade 2nd Term

*Specify separately the recitation and the laboratory work, thus: Elements of Physics, 5 periods {Recit., 2 / Lab., 3

SCHOOL OR COLLEGE RECORD

☞ **The University does not insist upon the use of this sheet, but in every case all of the information called for by this form should be supplied; and it is especially desired that all work be tabulated by years, as herein provided.**

Key to all grades or percentages given herein: _____

_____ Lowest passing grade is: _____

Grade required for University recommendation: _____

Length of recitation periods _____ minutes

Length of laboratory periods _____ minutes

Principal colleges or universities at which the institution herein named has the certificate privilege, in place of examinations for matriculation or for advanced standing: _____

Special Report concerning this Candidate:

Number of courses or "units" required for degree or diploma: _____

Number completed by applicant: _____

Graduated in the month of _____, year 19____

(or)

Withdrew, honorably, in the month of _____, year 19____

I certify to the correctness of the statement herewith, and to the good moral character of the candidate. Remarks: _____

Attest: _____
Signature of Principal or other responsible officer.

Position or title: _____

Dated at _____, 191____

[Please write on reverse if necessary: a full report is desired.]

TABLE OF CONTENTS.

	Page
President and Board of Trustees	4
The Calendar	6
The Faculty	9
Location of the University	13
Foundation	13
The Present	16
Constituent Colleges	17
Funds and New Buildings	17
System of Education	19
Studies	19
Fields and Buildings	20
Sessions, Holidays and Hours	23
Faculty Committees	24
Scholarships	25
General Regulations	28
Expenses in all Departments	31
Notice to Applicants	34
General Provisions Regarding Scholarship and Standing	36
Prizes	42
Departments of the University	47
Degrees in Colleges of Philosophy and Letters, and in Entrance Requirements	49
General Science and Engineering	48
Courses in Undergraduate Subjects, Subjects in Colleges, etc.	54
Colleges of Philosophy and Letters and General Science	54
College of Engineering	86
The Astronomical Observatory	142
The Institute of Law	143
The School of Pedagogy	171
The Pre-Medical Course	175
The Commercial Department	183
The High School or Preparatory Department	191
University Events	203
Annual Elocution Contest of 1916	204
Ryland Debate of 1916	206
Commencement of 1916	210
Degrees Conferred in 1916	212
Commercial Certificate Awarded in 1916	212
Winners of the Extraordinary Prizes	213
Organizations	223
Donations and Benefactions	232
Directory of Non-Resident University Professors	233
Register of Students in all Departments	235

CALENDAR

1916

Aug. 16, Wednesday.	Registration of non-resident students, 9 a. m. Registration of resident students, 1:30 p. m. (Fee for late registration $1.00.)
Aug. 17, Thursday.	Classes begin 2:30 p. m. Classes begin in Institute of Law, 6:55 p. m.
Aug. 24, Thursday.	Examinations begin for removal of Conditions.
Sept. 4, Monday.	Labor day; a holiday.
Sept. 9, Saturday.	Admission Day; a holiday.
Nov. 1, Wednesday.	Feast of All Saints; a holiday.
Nov. 25, Saturday.	St. Catharine's day; Philosophers' vacation day.
Nov. 28, Tuesday.	Thanksgiving vacation begins at 3:30 p. m.
Dec. 1, Friday.	Thanksgiving vacation ends at 6 p. m.
Dec. 5, Tuesday.	Repetitions begin in all classes.
Dec. 8, Friday.	Feast of The Immaculate Conception; a holiday.
Dec. 9, Saturday.	Examinations begin for students who were conditioned in the final tests before graduation.
Dec. 18, Monday.	Mid-year examinations begin.
Dec. 21, Thursday.	Christmas vacation begins at 3:30 p. m.

1917.

Jan. 4, Thursday.	Christmas vacation ends at 6 p. m.

Jan. 5, Friday.	Second semester begins.
Jan. 12, Friday.	Examinations begin for removal of conditions.
Jan. 27, Saturday.	St. John Chrysostom's Day; Sophomores' vacation day.
Feb. 11, Sunday.	Students' retreat begins at 6:20 p. m.
Feb. 15, Thursday.	Students' Retreat ends; a holiday.
Feb. 22, Thursday.	Washington's Birthday; a holiday.
March 8, Thursday.	Last day to submit subject for graduation theses in all departments.
March 15, Thursday.	Donohoe Prize Contest in Latin and Greek Composition.
March 17, Saturday.	St. Patrick's Day; a holiday.
March 19, Monday.	St. Joseph's Day; a holiday.
March 20, Tuesday.	Ryland Debate.
April 4, Wednesday.	Easter vacation begins at 3:30 p. m.
April 9, Monday.	Easter vacation ends at 6 p. m.
April 12, Thursday.	Last day to send in essays for Redwood Prizes.
April 14, Saturday.	Orella Medal Contest in Science.
April 16, Monday.	Archbishop's Medal Contest in Christian Doctrine.
April 17, Tuesday.	Elocution Contest for Owl and Junior Prizes.
May 3, Thursday.	Last day to hand in Graduation Theses.
	Last day to hand in Essays for McCann Prizes.

May 3, Thursday.	Barchi Medal Contest in Mathematics.
May 3, Thursday.	Repetitions begin for Seniors in Letters and Science, and Letters; also for College of Engineering and High School.
May 5, Saturday.	Repetitions begin for Juniors in Letters and Science, and Letters.
May 7, Monday.	Repetitions begin for Sophomores in Letters and Science, and Letters.
May 10, Thursday.	Written examinations begin for Seniors in Letters and Science, and Letters.
May 12, Saturday.	Written examinations begin for Juniors in Letters and Science, and Letters.
May 15, Tuesday.	Oral examinations begin for Seniors.
May 18, Friday.	Written examinations begin for Sophomores and Freshmen in Letters and Science, Letters, and for all High School classes Oral examinations for Juniors begin.
May 18, Friday.	Oral examinations in Law begin.
May 21, Monday.	Oral examinations begin for Sophomores in Letters and Science, and Letters.
May 23, Wednesday.	Commencement.

FACULTY OF THE UNIVERSITY

WALTER FRANCIS THORNTON, S. J.
President.

JOSEPH ALOYSIUS SULLIVAN, S. J.
Vice-President, Director of Discipline.

JOSEPH WILLIAM RIORDAN, S. J.
Secretary and Treasurer.

CORNELIUS ALOYSIUS BUCKLEY, S. J.
Dean of the Faculties; Director of Studies; Director of the School of Pedagogy.

HENRY WELCH, S. J.
Chaplain; Professor of Philosophy; Director of the Sodality of the Immaculate Conception and the League of the Apostleship of Prayer.

JEROME SIXTUS RICARD, S. J.
Professor of Ethics and Theodicy; Director of the Astronomical, Meteorological and Seismological Observatory.

WILLIAM MICHAEL BOLAND, S. J.
Professor of Logic, Metaphysics, Psychology and Political Economy; President of the Philalethic Senate.

RICHARD HENRY BELL, S. J.
Professor of Physics and Calculus.

PAUL FRANCIS GALTES, S. J.
Professor of Organic Chemistry, College Algebra, Spherical Trigonometry, Geology, Mineralogy, and Biology.

GEORGE GOLDEN FOX, S. J.
Professor of English, Latin and Greek; President and Stage Director of the Senior Dramatic Club; Speaker of the House of Philhistorians; Faculty Moderator of "The Redwood".

FIRMIN EUGENE CHANAL, S. J.
Librarian; Professor of French and Analytic Geometry.

HENRY LOUIS WALSH, S. J.
Instructor in English and Latin.

VICTOR VINCENT WHITE, S. J.
Professor of English, Latin and History; Faculty Moderator of Athletics.

FRANCIS JOSEPH McGARRIGLE, S. J.
Professor of English, Inorganic Chemistry and Plane Trigonometry.

ALEXANDER JOSEPH OYARZO, S. J.
Professor of Greek; Instructor in Latin and History.

TURIBIUS EDWARD BRACHO, S. J.
Instructor in Spanish; Computing Assistant in the Astronomical Observatory; Registrar.

ALPHONSE JUNIPERO QUEVEDO, S. J.
Assistant Prefect of Discipline.

JOHN CLEMENT WARD, S. J.
Instructor in Latin, English, History and Civil Government; Director of the University Choir.

EDWARD JOSEPH WHELAN, S. J.
Instructor in Latin, English and History; President of the Junior Dramatic Society; Director of the Saint John Berchmans Sanctuary Society for Resident Students; Director of the Holy Angels Sodality; Moderator of High School Athletics.

WILLIAM CHARLES GIANERA, S. J.
Instructor in Geometry, English, Latin and Greek.

FREDERICK JOSEPH RALPH, S. J.
Instructor in Algebra, Latin and English.

EDWARD JAMES CUNNINGHAM, S. J.
Instructor in English, Latin and History.

JAMES HENRY CAMPBELL, Ph. D., J. D.
Dean of the Institute of Law; Professor of Law.

JOHN EVAN RICHARDS, A. B. LL. B.
(Associate Justice of the District Court of Appeal for the First Appellate District of California.)
Presiding Judge of the District Court of Appeal of the University, Institute of Law.

WILLIAM ARTHUR BEASLY, LL. B.
(Judge of the Superior Court of California, for the County of Santa Clara.)
Judge of the Superior Court of the University, Institute of Law.

CLARENCE CHARLES COOLIDGE, B. S., A. B., J. D.
Professor of Law.

NICHOLAS BOWDEN, LL. B.
Professor of Law.

JAMES PETER SEX, Ph. D., J. D.
Professor of Law.

OWEN DALE RICHARDSON, A. M., LL. B.
Professor of Law.

FRANK HOBART BLOOMINGDALE,
Professor of Law.

JOHN JOSEPH JONES, A. B., LL. B.
Professor of Law.

LAWRENCE ARCHER BOWDEN, B. S., LL. B.
Professor of Law.

CURTIS HOLBROOK LINDLEY, LL. D.
Lecturer in Law.

JOSEPH LAVIALLE DONOVAN, U. S. Army, Ret., C. & M. E.
Professor of Civil Engineering.

GEORGE LEONARD SULLIVAN, B. S., Ph. D., M. E.
Professor of Mechanical-Electrical Engineering.

DONALD JOSEPH BERGMAN, B. S.
Instructor in Electrical Engineering.

IMMANUEL ALVIN OLIVER,
Instructor in Mechanical Engineering.

JULIAN JEREMIAH GRIMES, A. B., A. C. T., London
Professor of Architecture; Instructor in Mathematics.

DOXEY ROBERT WILSON, M. D.
Professor of Histology, Bacteriology and Embryology.

JOSEPH ROBERT FERNANDEZ,
Professor of Spanish.

ALBERT HENRY SCHUH, A. F. M. (Stuttgardt)
Professor of German; Instructor in Music.

CLARENCE FREDERICK NOELTNER,
Instructor in German.

BARTHOLOMEW RICHARD SULLIVAN, B. S.
Instructor in Accountancy, Commercial Law and Business Practice.

CLEMENT EMMETT HURD,
Instructor in Shorthand and Typewriting.

SAMUEL JOSEPH MUSTOL, B. Mus.
Director of Music; Leader of the University Band and the University Orchestra.

FREDERICK GERLACH, M. S., M. D.
Visiting Physician and Surgeon.

ANTHONY STANISLAUS PEREIRA, S. J.
Infirmarian.

UNIVERSITY OF SANTA CLARA

LOCATION.

The University is situated in the Mission town of Santa Clara, in Central California, forty-eight miles south of San Francisco and three miles from San Jose. The valley of Santa Clara is famous throughout the world for the rare beauty of its scenery, the salubrity of its climate, and the excellence of its fruits. The climate is mild and equable both in summer and winter, and on that account singularly favorable to persistent study and research as well as to the maximum of agreeable out-of-doors recreation which such work makes necessary. There is one well-defined rainy season, lasting from December to April inclusive, in which about fifteen inches of rain usually fall. Snow is almost unknown in the valley and falls on the surrounding hills hardly oftener than three times a year, melting almost as soon as it appears. Thirty degrees is normally the lowest temperature experienced in winter nights and this rises to about 55 degrees at noon. The average mid-day temperature in summer is about 70 degrees; it ranges between 60 and 80 degrees, and occasionally rises to a higher figure. Even the warmest days are followed by cool nights of which the usual temperature is 55 degrees.

FOUNDATION.

It is in this scene that the University of Santa Clara is set. It is located on the site of the Old Mission of Santa Clara, Santa Clara, California.

On January 12, 1777, two Franciscan Padres, de la Pena and Murguia, planted the Mission Cross on the banks of a little stream, called from that time the Guadalupe, at a spot now forming a part of the Laurel Wood Farm, near the Agnew Asylum. Two years later, a flood destroyed the primitive buildings, both church and monastery, and the Padres in consequence sought a site on higher ground near the present railway station of Santa Clara.

There, on November 9, 1781, they laid the foundation of a large adobe church and mission buildings. Three years later, on May 15, 1784, the new church was dedicated, by the Venerable Padre Serra, then Padre Presidente of all the Missions of California.

This church, however, was so badly shattered by several earthquakes in 1812 and 1818, that the Padres were forced to build anew. This time they chose the site which the University now occupies. There, on August 11, 1822, a still larger church was dedicated, which did service for many years till the violent earthquakes in the years 1865 and 1868 so cracked and weakened it that extensive repairs were necessary. By the year 1885 it had been almost entirely removed, having been gradually replaced by the present wooden edifice, the interior of which is a nearly perfect facsimile of its predecessor, retaining as it does, some of the old ornaments and furniture and the very ceiling of its sanctuary; while the other parts are so designed as to be a faithful reproduction of the original church.

The Mission of Santa Clara was secularized in 1836 and passed from the hands of the devoted Padres into

those of politicians, who, in dealing with the helpless Indians violated God's laws of right and justice, as well as the laws of the Mexican government in whose name they ruled. Santa Clara was soon robbed of her lands, and her children were oppressed or driven away to the forests.

When Rt. Rev. Joseph Sadoc Alemany, O. P., arrived, as Bishop of the Diocese of San Francisco in 1850, he found one lone Franciscan in charge of the mission, which had been restored by the American government, though in a sadly reduced form, most of the land being occupied by squatters.

Desiring to save the remnants of the mission, and also to start a college to meet the growing need of the times, the Bishop invited the Society of Jesus to Santa Clara. The invitation was accepted, and accordingly on March 19, 1851, the Rev. John Nobili, S. J., laid the foundation of the University of Santa Clara and began the work.

Fr. Nobili adapted the old adobe buildings to the requirements of a school, and in a few years numerous students were in attendance. On April 28, 1855, the institution was chartered a University and continued for many years to be known as Santa Clara College.

In 1904, during the presidency of Father Robert E. Kenna, S. J., a large tract of land was bought at Mountain View, with the intention of transferring the college thither, but, owing to the lack of financial support, nothing was done.

After careful consideration it was decided, in 1910, that this plan would have to be abandoned and that it was much wiser to improve the College in its present

location and thus make the most of the equipment it then had. Accordingly, in 1911, two new reinforced concrete buildings, in the mission style, were begun.

As early as 1907, lectures were commenced with a view of preparing students to enter upon the professional courses in law, medicine and engineering. By 1911, the pre-medical course was thoroughly established and the law school was begun. Realizing, therefore, that the college was practically doing the work of a University, the President, Fr. James P. Morrissey, S. J., and the Board of Trustees, decided to adopt officially the name of "The University of Santa Clara", and this decision was publicly announced on April 29, 1912. Later, on June 16, 1912, with appropriate ceremonies, in the presence of Most Rev. Patrick W. Riordan, D. D., Archbishop of San Francisco, of many present and former students, and of 30,000 spectators, with many elaborate pageants illustrative of the history of California and Santa Clara, the two new buildings were dedicated.

In the summer of 1912, engineers of high standing were engaged to carry on the courses in engineering, and in the next summer a thoroughly equipped laboratory for engineering was prepared. In the same year the amount of work required of law students was increased and almost all classes in Law were thenceforth held at night.

THE PRESENT.

The number of students is steadily increasing, but, owing to the fact that only a limited number of stu-

dents can be accommodated this growth of Santa Clara is greatly hampered.

Even more pronounced than this material growth has been the improvement wrought in the student body by the judicious selection of applicants for admission and the elimination from the University, of students whose moral influence was not helpful. The principle of the Faculty has been to receive and retain no one whose manners are not proper and whose habits are not irreproachable. Today parents realize that education which neglects manners is a mistake and that a university which overlooks or takes little account of morals is a monstrosity.

CONSTITUENT COLLEGES.

The University now possesses the following constituent Colleges:

The College of Philosophy and Letters;
The College of General Science;
The Institute of Law;
The College of Engineering, embracing Architectural, Civil, Electrical and Mechanical Engineering;
The School of Pedagogy; and
The Pre-Medical Course.

FUNDS AND NEW BUILDINGS.

The growth in the number of students has made it imperative in recent years to provide ampler and more substantial accommodations. For this and in order that Santa Clara may widen its scope as a first class educational institution, funds are necessary. Santa Clara stands in imperative need of an endow-

ment. The work the University has accomplished in the past is an earnest of what she will do when increased facilities are afforded her.

An endowment, however, implies a founder or founders and benefactors. During the past few years, many have helped the University and generous donations have been made. The Administration building, 200x43 feet, and the Senior Hall, both in reinforced concrete, are completed. But before other buildings for which the plans of the University provide, may be added, further benefactors will be needed. Other educational institutions, even those state-aided and richly endowed receive generous assistance in the work and hesitate not to ask it. Santa Clara feels that generous friends are not lacking, though for the want of deeper thought on the matter, few realize the importance of Christian educational work, the immense sacrifice it entails, and the merit there is in co-operating and sharing with Christian educators in their work for God and Country and the welfare of the young men of our generation who are to become the leaders of the generation of tomorrow. The faculty of the University has given its life-services freely and gladly to the work. Those who would share with them in this great enterprise can do so most effectively by rendering material aid and contributing funds for the continuance and development of the work.

FORM OF BEQUEST.

I give and bequeath unto the President and the Board of Trustees of Santa Clara College, a corporation duly incorporated under the laws of the State of California, a sum of.....dollars.

SYSTEM OF EDUCATION.

The Jesuit system of education aims at developing side by side the moral and intellectual faculties of the student, and sending forth to the world men of sound judgment, of acute and rounded intellect, of upright and manly conscience. And since men are not made better citizens by the mere accumulation of knowledge, without a guiding and controlling force, the principal faculties to be developed are the moral faculties. Moreover, morality is to be taught continuously; it must be the underlying base, the vital force supporting and animating the whole organic structure of education. It must be the atmosphere the student breathes. It must suffuse with its light all that he reads, illumining what is noble and exposing what is base, giving to the true and false their relative light and shade.

STUDIES.

It is one of the decided advantages of the system followed at Santa Clara, that the student may begin his studies in the Preparatory School conducted under the supervision of the University authorities, and then pass on, through the University Course, to graduation under the same direction and influence. This secures, besides the moral influence thus gained, a uniform and homogeneous course of teaching and training. The result of this system is a continuous and normal development of the mental faculties along well defined lines, and the possession of a clear and coherent system of principles upon the subjects which he has studied.

FIELDS AND BUILDINGS.

The Mission Church.

Built on the site of the old Mission Church of 1822, this building preserves many of the relics, features and decorations of the Franciscan days, though most of the walls have been removed.

The Memorial Chapel

As a memorial of deceased students this handsome chapel was erected in 1887, during the presidency of Rev. Father Robert E. Kenna, S. J., through the generosity of many alumni and friends of Santa Clara College.

Senior Hall.

This hall, built in 1912 of reinforced concrete, furnishes on the second and third floors, private rooms for the older students. On the first floor are seven large class-rooms for College Classes; the Law Library and Study Hall; the Theoretical and Drawing Classes in Engineering. In the basement are a large social hall, Senior Reading Room, the Practice Court of the Institute of Law, and the Palaeontological Museum.

The Theatre.

All dramatic productions at Santa Clara since 1870, including the Passion Play and the Mission Play of Santa Clara, have been presented in this theatre. Its stage is one of the largest for amateur productions in the West. The lower floor is fitted up as a Dormitory for older students.

The Literary Congress Building.

For a time the meeting place of the House of Phil-

historians and the Philalethic Senate was in this building. Now it houses the Department of Chemistry, and is used to some extent as a substitute for a Gymnasium.

The Scientific Building.

The First and Second Division Study Halls, the Typewriting Room, the Physical Cabinet and Laboratory, the Mineralogical Museum, and the Laboratory for Wireless Telegraphy are housed in this building.

The Commercial Building.

This building contains the High School class-rooms and study hall, the Commercial School, the Physical Laboratory for the High School, and the Drafting room of the Architectural Department of the College of Engineering.

The Infirmary Building.

This structure, with its several wings comprises the Kitchen, the Refectories, the Infirmary with private rooms and ward, Dormitories for younger students, Clothes-room, and the Students' Co-operative Store, rooms for the individual practice of Music, and the Band-room.

The Observatory.

The equatorial telescope, the seismographs and various meteorological instruments, and the study of the Father in charge, are housed in four small buildings. Through the generosity of Mr. John W. Ryland, a circular building with revolving dome has just been erected to shelter one of the telescopes.

The Faculty Building.

This structure of reinforced concrete built in 1912, to replace the old Fathers' Building, which was destroyed by fire in 1910, contains the offices of the chief executive officers of the University, parlors, the residence of the Fathers and Scholastics who are attached to the University or the Parish of Santa Clara, and the Library of the University.

The Engineering Laboratory.

Forges, machinery for wood-working and pattern-making, etc., used in the courses of the College of Engineering find place in this building.

Athletic Field.

This includes the grounds devoted to intercollegiate contests in baseball and football. It is equipped with a large grand-stand for baseball.

Outer Campus.

Three city blocks in front of the Administration Building and Senior Hall give room for two large baseball diamonds and football fields for the Junior and other minor organizations.

Inner Campus.

This field located between Senior Hall and the Scientific Building contains the track, tennis courts, handball courts, etc.

SESSIONS, HOLIDAYS, HOURS.

The school year consists of two semesters.

The first semester begins August 16th, 1916, and ends December 21, 1916.

The second semester begins January 4th, 1917, and ends May 23rd, 1917.

The recess at Thanksgiving begins November 28th, 1916, and ends December 1, 1916.

The recess at Christmas begins December 21st, 1916, and ends January 4th, 1917.

The recess at Easter begins April 4th, 1917, and ends April 9th, 1917.

The weekly holiday is Wednesday.

Lectures and classes begin daily at 8:20 a. m., and close at 3:30 p. m.

In the Institute of Law, class is held every evening at 6:55 and also on Saturday at 2:30 p. m. Every evening, including Wednesday, there are two periods of class in legal subjects, each of which lasts from one to one and one-half hours.

FACULTY COMMITTEES

Examinations—

Sophomore—The Professors of Sophomore and Freshman Courses.

Junior—The Director of Studies, and the Professors of the Junior Courses.

Senior—The President, the Director of Studies, and the Professors of the Senior Courses.

Theses—The Director of Studies and the Professors of Junior and Senior Courses.

Athletics—The Director of Discipline, the Director of Studies and the Faculty Director, assisted by the Officers of the Student Body.

Dramatics and Public Exercises—The President, the Director of Studies, the Director of Discipline, and the President of the Senior Dramatic Club.

"The Redwood"—The Director of Studies, the Faculty Director guiding the staff, and the Professors of Philosophy and English.

Post-Graduate Studies—The President, the Director of Studies, and the Professors of the subjects in which the Post-Graduate work is taken.

Discipline—The Director of Discipline, the Assistant Director of Discipline and the Director of Studies.

Attendance—The Director of Studies, and the Director of Discipline.

Scholarship and Standing—The Director of Studies, and the Deans of the several Colleges.

SCHOLARSHIPS

Every year several deserving young men of high character and aspirations, whose means do not permit their attending the University, appeal to the Faculty for assistance to obtain the education for which their talents and vocation fit them. There is scarcely a university in the United States which is not provided with a fund for this purpose, and a relatively large percentage of successful college men spring from the class of assisted students. It is clearly a noble benefaction to contribute to such a purpose in any case. But this is especially so in the case of those who apply for help to the University of Santa Clara. They are as a rule young men of high standing, who understand the paramount value of an education in a university which aims at the highest intellectual development of the student, while devoting no less attention to the perfect development of his moral character. As a consequence it follows that to assist them in attaining their desire is to aid picked young men whose future is more than ordinarily full of promise, and who are destined to exert a most powerful influence on those among whom their lives will be spent.

It is the intention of the Faculty of the University of Santa Clara to make an earnest effort to supply this pressing need, by establishing free scholarships for resident and non-resident students, so that worthy young men may receive the help they desire. For this purpose an appeal is made to all who appreciate the importance of the matter.

The Scholarships to be founded will be of two classes, perpetual and temporary. By establishing a perpetual scholarship the donor will maintain one student at the University of Santa Clara in perpetuity. A temporary scholarship will maintain one student at the University during the four years of his course. The amount contributed will be invested in reliable securities, the interest of which will support the student. The cost of founding Scholarships is as follows:

Perpetual Scholarship for a resident student—board, lodging, etc., tuition, text-books $12,500.00

A perpetual Scholarship for a day student—tuition and text-books ..... $ 3,000.00

A temporary Scholarship for a resident student—board, lodging, tuition, text-books, for four years ..... $ 2,000.00

A temporary Scholarship for a day student—tuition, text-books, etc., for four years..... $ 500.00

It is the desire of the Faculty to name these scholarships after their founders, that thus the recipients of their generosity may know to whom they are indebted for their education, and ever retain grateful remembrance of them.

THE ALICE PHELAN SULLIVAN MEMORIAL SCHOLARSHIP.

This perpetual scholarship for a resident student was founded in 1912 by the gift of $12,500 from "A Friend" in memory of Mrs. Alice Phelan Sullivan of San Francisco.

THE JESSE W. BRYAN MEMORIAL SCHOLARSHIP.

This perpetual scholarship for a resident student was founded in 1913 by the gift of $12,500 by Mrs. Sarah A. Bryan, in memory of her son, Mr. Jesse W. Bryan, a former student of Santa Clara.

GENERAL REGULATIONS

No one will be admitted as a student unless he has a good moral character.

Candidates for admission must present satisfactory recommendations. Those from other educational institutions must be recommended by the institutions whence they come. For scholarship requirements cf. Graduate and Undergraduate Departments.

To cultivate the heart, no less than to develop the intellectual and physical faculties of the students, is a duty kept constantly and sacredly in view.

Students are not received for a shorter period than one semester.

As the Faculty of the University profess the Catholic Religion, the exercises of religious worship are Catholic; but members of any religious denomination are received, provided they be willing, for the sake of order and uniformity, respectfully to conform to the religious observances of the University.

No student will be permitted to leave the University on visits of any length, except during the vacations of Thanksgiving, Christmas and Easter, if such be the wish of his parents or guardian. Parents are requested not to call their sons home at other times, except in cases of urgent necessity, as such interruptions, besides tending to undermine or prevent the acquisition of habits of concentration and persevering work, are apt to result in poor scholarship and in the consequent wrecking of the whole career of the student.

A recess at Thanksgiving and Easter may be given at the discretion of the President.

Students taking Collegiate courses, whose homes are not in the neighborhood, must reside within the University unless they are accompanied by their parents.

Students who, having left the University for the summer vacation, Christmas holidays, or other recesses allowed by the President, fail to be present on the day for the re-opening of class. will, by the fact of absence, be excluded from the University, or at the discretion of the Faculty from privileges until the following semester, particularly the privilege of visiting friends and relatives on the Second Wednesday, unless parents or guardians show cause of absence which the Faculty shall consider wholly sufficient.

The students are not allowed the use of tobacco, except in First Division with written permission from parents or guardians.

Students are not permitted to have books or other publications that have not been approved by the Vice President.

The students' correspondence is subject to the inspection and control of the President.

To hold meetings or to form clubs or societies of any kind without the consent of the President; the habitual use of profane language; indecent conduct either within or without the precincts of the Institution; the possession or distribution of indecent publications or pictures; intoxication; procuring or introducing intoxicating liquors, directly or indirectly into the University; habitual idleness and violation of the

rules of the University; obstinate refusal to submit to a punishment inflicted; absence from the University at night without leave from the President; avowed principles of infidelity; express contempt or ridicule of religion, are offenses which expose the offenders to dismissal or suspension, as in the judgment of the Faculty shall be deemed necessary.

EXPENSES IN ALL THE DEPARTMENTS OF THE UNIVERSITY

Matriculation fee, paid at entrance	$ 15.00
Board, Tuition, Lodging, washing and mending of linen, per semester	200.00

N. B. Washing of other than linen and underwear, or of linen and underwear in excess of ordinary weekly requirements, will be charged at usual laundry rates.

Athletic fee, per semester	2.50

NON-RESIDENT STUDENTS.

Tuition in High School Course, per semester	30.00
Tuition in University Course, per semester	50.00
Athletic Fee, per semester	2.50
Dinner, per semester	35.00

EXTRA EXPENSES.

Late Registration.

Registration after opening day of semester	1.00

Private Rooms.

If used by one, per semester	60.00
If used by two, per semester, each	30.00
Room deposit	10.00

A few rooms are reserved at a higher rate.

No room will be assigned until a room-deposit of $10.00 will have been made. This

deposit is to cover any injury that may be done to room or furniture. If no damage be done, the deposit will be returned when the student gives up the room.

Books.

Deposit for books by law students	$ 35.00
Deposit by those not law students	10.00

Non-Resident Students pay in cash. Books and stationery are furnished at dealers' rates.

Laboratories.

Physics and Chemistry in Collegiate Course, per semester	$ 12.50
Pre-Medical Course, per semester	25.00
Engineering, Freshman, per semester	12.50
Engineering, Sophomore, per semester	20.00
Engineering, Junior, per semester	25.00
Engineering, Senior, per semester	25.00
A deposit in all Laboratories against breakage, per semester	5.00

Music.

Instruction in Music, per semester	$ 40.00

Modern Languages.

Free to students in regular Course; to others, per semester	$ 10.00

Typewriting.

Per semester	$ 5.00

Diplomas and Certificates.

Commercial Certificates	$ 5.00
Degrees and other Certificates	10.00

No Certificate or Degree is given unless all accounts with the University are settled.

Extra Examinations.

For each extra examination to remove a condition, or for any examination taken out of time ..... $ 2.00

For each syllabus (synopsis of a semester's work in any subject furnished by the teacher) ..... .50

Pocket Money and Incidentals.

The amount of Pocket Money and money for incidentals is left entirely to parents and guardians. The University prefers that parents deal directly with the Students. Should, however, parents or guardians wish the Treasurer of the University to look after these matters, they must deposit a sufficient amount with him and instruct him how the money is to be used. The University does not advance money for these purposes.

Infirmary Charges.

No charges are made for the attendance of the University Physician. Medicines are charged at cost prices. For a room in the Infirmary a dollar a day is charged.

Payments.

PAYMENTS MUST BE MADE HALF-YEARLY IN ADVANCE.

It is unpleasant to press friends and patrons for payment. Remittances should be made in the name of the University of Santa Clara. Semester bills and unpaid balances are subject to sight draft ten days after the bill is rendered.

Rebates.

Grievous sickness necessitating absence from the University is the only reason on account of which a rebate is allowed. Late attendance, dismissal, the withdrawal of students by parents or guardians and similar happenings, are serious inconveniences to the University, and hence contracts are made for sessions and not for shorter periods.

An itemized bill is furnished once every semester.

When a pupil is withdrawn temporarily or permanently from the University, the President must be directly informed, and money supplied for travelling expenses.

A limited number of student helpers may be received at reduced rates.

A HEALTH REQUIREMENT IS EXACTED.

All students are subject to examination by the University physician.

EVERY APPLICANT

should forward to the President a certificate of the studies he has completed with a testimonial as to his character and diligence, signed by the head of the school last attended. Where the applicant has received a degree, or has been otherwise graduated, he should present his diploma or its equivalent, duly signed by the proper authorities of the school that issued it.

The articles which every student coming to reside at the University should bring with him are, more or

less: two pairs of sheets, three pillow cases, two counterpanes, three suits of clothes, a sufficient number of shirts, drawers, handkerchiefs, socks, shoes, napkins, towels, combs, brushes, etc., all marked with his name distinctly before he comes.

Promptness in reaching the University on the day fixed for the opening of classes is necessary. It is essential that Parents and Students understand this clearly from the beginning of their connection with the University, as promptness in returning from vacations and recesses, which is requisite in order to prevent the loss of valuable time and the forming of habits of procrastination and negligence of duty, is strictly insisted on.

GENERAL PROVISIONS REGARDING SCHOLARSHIP AND STANDING.

Attendance.

No student is eligible to enter any examination, written or oral, nor is he entitled to credit, unless he has been in attendance at 80 per cent of the classes, but students in the Institute of Law must have been in attendance at 90 per cent of the classes. Absence caused by sickness will not excuse a student from the operation of this rule.

Written Examinations

Are held monthly in all subjects and in all departments. They are also held twice a year upon the work seen during the preceding semester.

Oral Examinations

At the end of the scholastic year must be passed by all the following classes of students.

1. Students finishing Sophomore year in the College of Letters or the College of Science must be examined in English and Latin for fifteen minutes in each subject and in Greek (or a Modern Language), ten minutes.

2. Students who have followed the course in Elementary Law for one semester or more must be examined therein for ten minutes.

3. All students, regular or special, who have followed the courses in Philosophy and Political Economy, or any part thereof, must be examined therein for twenty minutes.

4. All students, regular or special, in the Institute of Law, the Pre-Medical Courses, the School of Pedagogy, and all other courses open to Juniors and Seniors in the College of Letters or the College of Science, except Philosophy and Political Economy which have been provided for above, must be examined in the subjects pertaining to such schools or courses, for forty minutes.

5. All students in the Commercial Department, as a final test for graduation, must be examined for thirty minutes in all subjects taught in that Department, or in such of those subjects as the examiners may choose.

No student may be orally examined unless he has passed satisfactorily all the written examinations given at the end of each semester on the matter seen therein, or having been conditioned on the first semester examination, has removed the condition; nor unless in addition to the preceding requirement he has received a passing grade on the whole year's work in every subject studied.

The examination must extend to all the work done during both semesters in the subjects indicated; but if the student was present during only one semester, the examination covers the work of that semester only.

The examination is to be conducted privately before a board of the Faculty who may increase the time allotted to any examination if they see fit.

Promotions.

A student to be promoted in any subject must have attained an average of at least 70 per cent on the whole year's work in that subject.

This average is computed as follows, all work being marked on the basis of 100 for perfect work.

Class-work plus monthly examination divided by two gives the monthly mark.

The sum of five monthly marks and five times the semester examination mark, divided by ten gives the semester mark.

The sum of the marks for the first and second semester divided by two gives the mark for the whole year's work.

Where an oral examination is required, the student cannot be promoted or graduated unless he attains therein the passing mark of 70.

Special regulations as to the grades to be maintained by law students, candidates for degrees and certificates, will be found under "Institute of Law, Graduation."

Conditions.

A mark of 60 to 70 indicates a condition.

When Conditions May Be Removed.

Where a student is conditioned in an examination given at the end of the first semester, he will not be re-examined until approximately two months after his failure. Unless this condition is removed upon re-examination, the student will not be admitted to the final examinations at the end of the year.

Where a student is conditioned in a written or oral examination, given at the end of the school year, he will not be re-examined until the beginning of the next school year; provided however, that where a student is conditioned in a written or oral examination given

as one of the final tests before graduation, he will not be re-examined until six months after receiving the condition.

Where a student has been re-examined in any subject to remove a condition or reach a certain average, another examination may be permitted in the discretion of the Faculty; but in no case may it be taken until two months have elapsed since the former examination. If the student fails to reach the required average no further examination will be allowed.

See also "Failures" below, for pre-requisites to re-examination.

Any student who enters the Senior year of any of the Colleges with a condition, will have the status of a special student unless this condition is removed within one month after the opening of the University for the first semester.

Failures.

A mark of less than 60 indicates a failure.

A failure in a subject means that the student must repeat the work in class the next time it is given.

A conditioned student who fails to pass a satisfactory examination at the time set for condition examinations, receives a failure in the subject.

If the condition is received in a Bookkeeping or a Laboratory course, the student must make up the work in which he is deficient before the time of the condition examinations, or receive a failure.

Fee for Condition and Irregular Examinations.

For every examination, written or oral, given out of the regular time, or to remove a condition, an extra charge is made of two dollars.

Recommendation to Other Schools.

No student will be recommended for entrance into any other University, College or High School who has not maintained an average of 85 per cent in every subject throughout his course.

No credit can be given for work done during any semester in which the student has not been present at eighty (or in the Institute of Law, ninety) per cent of the classes.

Candidacy for Degree or Certificate.

Every person who wishes to become a candidate for a degree or certificate in the work of any school connected with the University, must, not later than one month after his entrance, file with the Committee of Scholarship and Standing a written statement of the degree or certificate to which he aspires and the work which he proposes to do. He will then be informed whether he may be admitted as a candidate for such degree or certificate and whether the work proposed is satisfactory. Any change of purpose must be similarly announced.

Electing Studies.

All students must inform the Director of Studies in writing as to their choice of subjects, and no one may enter upon a course or drop one already taken up without his advice and consent, upon penalty of receiving no credit in the first case and a condition in the subject dropped, in the second.

Registration Card.

Before registering for instruction in any department, the student must obtain a card signed by the Treasurer

of the University, showing that a satisfactory settlement of the student's account has been made. He must then obtain another blank from the Director of Studies, write thereon the subjects elected and approved, and present it, together with the Treasurer's card, to his professors for their signature. It should then be returned to the Director of Studies, to be filed in his office.

WRITTEN WORK.

The following written work is to be required of the students, in all the classes indicated:

All students in the courses of Philosophy and Political Economy must write and deliver to their professor every month an essay of not less than 1500 words, on a subject selected by him from the matter lately studied.

In all classes of Mathematics, three problems or riders are to be set weekly.

In all classes of English, a composition, essay, or poem, and two written exercises in addition, are to be given in weekly by the students.

In all classes in Modern Languages, there shall be as many written exercises as there are classes.

In classes of Latin and Greek three themes are to be handed in each week. See Latin (3, 6, 9), College of Letters.

All of these out-of-class exercises will be corrected by the teacher, either in class or out of it, and returned to the students.

PRIZES.

Prizes are awarded in all classes and in all subjects, to the students who are first and second in merit.

Students whose yearly average is 85 per cent or over are given distinctions.

No student is eligible for an ordinary prize who has not been present for the whole school year.

EXTRAORDINARY PRIZES.

The following extraordinary prizes are open to competition on the dates announced in the University Calendar. The Faculty Committee of Scholarship and Standing reserves the right not to award any of these prizes in the absence of sufficient competition or a meritorious grade of scholarship. No one is eligible to compete a second time for a prize which he has already won, except after an interval of one year.

Senior Nobili.

An annual prize of $60.00 founded by Joseph A. Donohoe, Esq., in honor of the First President of Santa Clara, Fr. John Nobili, S. J., to be given to the student who shall be deemed first in morals, obedience and application to study.

Junior Nobili.

An annual prize of $35.00 founded by Michael H. Kelly, Esq., to be given to the student in the High School Department who shall be deemed first in morals, obedience and application.

The Archbishop's Medal.

An annual prize of $50.00, the gift of His Grace, Most Rev. Edward J. Hanna, D. D., Archbishop of San Francisco, in memory of his illustrious predecessor, Most Rev. William Patrick Riordan, D. D., for the student who shall have competed most successfully in an examination in Christian Doctrine.

The Donohoe Prize.

An annual prize of $50.00, to be awarded to the student who shall show the greatest progress in the study of Latin and Greek during the session, has this year been set aside for the best Latin Composition and divided into three purses of $25.00, $15.00 and $10.00, respectively.

The Ryland Medal.

An annual prize of $25.00, the gift of Hon. C. T. Ryland of San Jose, to be given to the student who may be deemed by the University most fit for the prize, has been set aside for the student who shall be judged to have distinguished himself most in the Annual Ryland Debate. To this sum John W. Ryland, Esq., B. S. '77, LL. B., '12, has added the sum of $60.00, and the prize has been divided so that the purses offered are now $50.00 for the best speaker in the debate, $25.00 as a second prize and $10.00 as a third.

The Barchi Prize.

An annual prize of $25.00 for the best paper on such scientific subject as shall be determined by the Faculty, is divided into two purses of $15.00 and $10.00 respectively.

The McCann Prize.

Annual prizes of $15.00 and $10.00 founded in honor of Daniel B. McCann, B. S. '84, to be given for the best short story.

The Redwood Medal.

An annual prize of $25.00 founded in 1908 by the executive committee of "The Redwood", and given for the best essay on a historical subject.

The Owl Medal.

An annual prize of $25.00 founded by the directors of the former College Magazine, "The Owl", to be given to the winner of the elocution contest in the University.

The Junior Elocution Prize.

An annual prize of $25.00 to be given to the winner of the elocution contest in the High School Department.

The Orella Medal.

A medal of the value of $25.00, founded by Dr. Firmin R. Orella, B. S., '89, to be given to the writer of the best paper on a scientific subject.

The Donovan Prizes.

Prizes donated by Colonel Joseph L. Donovan, U. S. Army, Ret., C. & M. E., of the faculty of the College of Engineering: $25 for the best Senior thesis in Civil Engineering; $10 for the best Senior paper in Civil Engineering Design; $10 for the best Junior paper in Civil Engineering Design; $20 for the best examination in Sophomore Engineering Mathematics; $10 for

the best examination in Freshman Engineering Mathematics.

The Silver Medals for Conduct and Application to be given to the following students who become most distinguished for good conduct and application to study:

1. The most distinguished **resident University** Student.

2. The most distinguished **non-resident University** student.

3. The most distinguished **resident High School** student.

4. The most distinguished **non-resident High School** student.

The "Cyc" Prize.

A prize of a complete set of "Cyc" (the Cyclopedia of Law and Procedure) with annotations to date, is offered by the American Law Book Company to the student of the Institute of Law who shall take the highest scholarship honor for the period of his Senior year, including his oral examination.

The Corpus Juris Scholarships.

The American Law Book Company also offers three scholarships, to be known as the "Corpus Juris Scholarships," each of the value of $500, payable in four equal payments of $125 each, for the purpose of one year's resident post-graduate work, at a school approved by the Company. The scholarships are to be awarded as follows:

The Company will choose a committee of law school

professors to submit some subject for a thesis to the honor man of each law school having a regular course of three or four years. The best three of these theses submitted to and judged by the committee of law school professors will win the three "Corpus Juris Scholarships."

This offer begins with the year 1915-16 and will continue annually until further notice.

DEPARTMENTS OF THE UNIVERSITY

DEPARTMENTS, CURRICULA, COURSES.

The University includes the Graduate and Undergraduate Departments.

GRADUATE DEPARTMENT.

Aim and Scope.—The Graduate Department offers students who have attained to Academic Degrees, studies leading to the higher ones of Master or Doctor. The determination of these courses rests with the Committee on Post-graduate Studies. A sufficiently wide option is allowed, much of the instruction being in the form of direction along lines of original research.

Courses may be had in Philosophy, Sociology and Economics, English, Latin, Greek, and Mathematics, as well as in the Pre-Medical course, the Professional Colleges of Law and Engineering.

Graduates who have received the degree of Bachelor of Arts or Bachelor of Science, may receive the degree of Juris Doctor on completing the course of the Institute of Law and prescribed work in Roman Law, International Law and the History of English Law.

Theses—Before one is admitted to any degree in any Department, or to a certificate in Law, a thesis must be submitted on a subject chosen by the student with the approbation of the Committee on Theses. It must

bear on the matter studied, or at least on cognate matter, and it shall consist of no fewer than 5000 words. The theses should be typewritten on National White unruled paper, 8½x11 inches. The ultimate decision as to whether the effort merits the Degree rests with the Committee on Theses.

UNDERGRADUATE DEPARTMENTS.

These include:

A. THE COLLEGE OF PHILOSOPHY AND LETTERS.

A four years' college course, leading to the degree of Bachelor of Arts.

B. THE COLLEGE OF GENERAL SCIENCE.

A four years' college course, leading to the degree of Bachelor of Science.

C. THE INSTITUTE OF LAW.

A standard three years' course of law, leading to the degree of Juris Doctor or Bachelor of Laws, which is open also to Special students. Graduates are admitted to practice law without examination, subject to the right of the Chief Justice to order examination.

D. THE COLLEGE OF ENGINEERING.

(a) Architectural Engineering. A four years' course leading to the degree of Bachelor of Science in Architecture.

(b) Civil Engineering. A four years' course leading to the degree of Bachelor of Science in Civil Engineering.

(c) Mechanical Engineering. A four years' course leading to the degree of Bachelor of Science in Mechanical Engineering.

(d) Electrical Engineering. A four years' course leading to the degree of Bachelor of Science in Electrical Engineering.

E. THE SCHOOL OF PEDAGOGY.

A course of studies in Education which aims at preparing graduates of the University for capable service in the field of high school education.

F. THE PRE-MEDICAL COURSE.

A two years' course of studies in Chemistry, Biology, Histology and Embryology, which is recommended to students contemplating entrance into medical schools.

ENTRANCE REQUIREMENTS.

Applicants for admission to the Freshman Year in any College of the University must either (1) have completed the regular Four-Year High School course of the Preparatory School of the University, or (2) have completed a similar course in an accredited High School, or (3) pass an examination based on a four-year course amounting in the aggregate to sixteen units. Of these sixteen units, ten or more are prescribed and required of all applicants; the rest are elective from the list of optional subjects.

CONDITIONS.

In certain cases, at the discretion of the Committee on Entrance Standing, which shall decide on the merits of each particular case, conditions in elective branches to the amount of not more than two units may be allowed. All conditions must, however, be removed by the end of the Freshman year.

As the prescriptions in the classical languages are difficult for secondary schools to meet, two conditions may be permitted in these languages in cases of special merit.

The following is a list of the units required for entrance into the respective Colleges.

COLLEGE OF PHILOSOPHY AND LETTERS.

Subjects Prescribed.

English	3 units
History	2 units
Latin	4 units
Greek	2 units
Algebra	1½ units
Geometry	1½ units

Electives.

Physics	1 unit
Chemistry	1 unit
Foreign Languages	2 units
History	2 units
Trigonometry	½ unit

COLLEGE OF GENERAL SCIENCE.

Subjects Prescribed.

English	3 units
History	2 units
Foreign Languages	2 units
Algebra	1½ units
Geometry	1½ units

Electives.

Physics	1 unit
Chemistry	1 unit
Foreign Languages	2 units
English	1 unit
History	2 units
Trigonometry	½ unit

COLLEGE OF ENGINEERING.

Subjects Prescribed.

English	3 units
History	2 units
Foreign Languages	2 units
Algebra	1½ units
Geometry	1½ units

Electives.

Physics	1 unit
Chemistry	1 unit
Foreign Languages	2 units

English	1 unit
History	2 units
Trigonometry	½ unit

To count a "unit" a subject must be taught five times a week, in periods of not less than forty-five minutes, for a school year of not less than thirty-six weeks.

INSTITUTE OF LAW.

Entrance Requirements and Conditions of Graduation Are fully set out on pages 153 and 162 of this catalogue.

Colleges of Philosophy and Letters and General Science

COLLEGE OF PHILOSOPHY AND LETTERS.

The College of Philosophy and Letters covers a curriculum of four years and leads to the Degree of Bachelor of Arts. It comprises courses of studies selected with special regard to their cultural value, and which, far from being of merely cultural importance, afford the most solid foundation for many of the learned professions and for those larger commercial pursuits characteristic of the present age, which demand intellects carefully trained and poised by the most efficient educational instruments available. The Degree of Bachelor of Arts is awarded only to those students who in addition to other prescribed studies present a minimum of four years of Greek.

During the first two years of this curriculum the chief studies are the classical languages and literatures, English, Mathematics, Physics, Chemistry and History. In the last two years courses in philosophy, ethics and economics are prescribed, and elective work, which counts as two years for the Degree of Bachelor of Arts, may be taken in the Institute of Law, in the Pre-medical Course, in the School of Pedagogy, and other departments of the University.

COLLEGE OF GENERAL SCIENCE.

The Curriculum of the College of General Science extends over four years and leads to the Degree of Bachelor of Science. Students whose preparatory training in the classics was not sufficient to warrant their entrance into the College of Philosophy and Letters are

eligible to this curriculum, in which, with the exception of the classical literatures, for which modern languages and literature are substituted, are contained all the strong studies of the curriculum of the College of Philosophy and Letters.

At the beginning of the third or Junior Year in this course students may enter the Institute of Law, the Pre-medical Course, the School of Pedagogy or elect other studies from the University curricula to the amount of two year's work in credits for the Degree of Bachelor of Science, work in any of these departments being accepted towards the credits necessary for the degrees of A. B., B. S., LL. B., and J. D.

REQUIREMENTS FOR GRADUATION.

One credit is given for each hour's work in a subject taken during an entire semester, except that for two hours of laboratory work, only one credit is given.

For the degree of A. B., when the elective work of Junior and Senior years is taken in the Institute of Law, 368 credits are required for graduation; if the elective work is taken in the Pre-Medical course 349½ credits are required; and if it is taken in the School of Pedagogy 328 credits are required.

For the degree of B. S., with the Law electives, 364 credits are required, 345½ with the Pre-Medical electives and 324 with the Pedagogy electives. For the degree of LL.B. 396 credits are required. The subjects in all these courses are obligatory after the choice of an elective is made and no substitution is allowed.

REQUIRED COURSES.

Required Courses in the College of Philosophy and Letters and in the College of General Science.

FRESHMAN YEAR.

First Semester.

	Hours Attendance Rec.	Lab.	Credits.
English Precepts, Eng. (1)	3		3
English Composition, Eng. (5)		4	2
†Religion, Phil. Relig. (1)	2		2
History, History (1)	3		3
Public Speaking, Eng. (14)	1		1
Advanced Algebra, Math. (3) or	3		3
Plane Trigonometry, Math. (1)	3		3
Latin, Latin (4, 5, 6)	5		5
Greek, Greek (1, 3)	4		4
*Modern Language, two of either French (1), German (1), or Spanish (1)	8		8
Inorganic Chemistry, Chem. (1, 2, 3)	3	4	5

Second Semester.

	Hours Attendance Rec.	Lab.	Credits.
English Precepts, Eng. (2)	3		3
English Composition, Eng. (3)		4	2
†Religion, Phil. Relig. (2)	3		3
History, History (2)	3		3
Public Speaking, Eng. (14)	1		1
Spherical Trigonometry	3		3
Latin, Latin (1, 2, 3)	5		5
Greek, Greek (2, 3)	4		4
*Modern Language, two of either French (2), German (2) or Spanish (2)	8		8
Inorganic Chemistry, Chem. (4, 5, 6)	3	4	5

*Two modern languages are substituted for Latin and Greek in the College of General Science.

†Required only from students professing the Catholic faith.

SOPHOMORE.

First Semester.

	Hours Attendance Rec.	Lab.	Credits.
English Precepts, Eng. (3)	3		3
English Composition, Eng. (7)		4	2
†Religion, Phil. Relig. (3)	2		2
{ History, Histy. (3) or	3		3
{ Elementary Law, See page 155	3		3
Public Speaking, Eng. (15)	1		1
Analytic Geometry, Math. (4)	3		3
Latin, Latin (7, 9)	5		5
Greek, Greek (4, 6)	4		4
*Modern Language, two of either French (3), German (3) or Spanish (3)	8		8
Physics, Physics (1, 3)	3	4	5

Second Semester.

	Hours Attendance Rec.	Lab.	Credits.
English Precepts, Eng. (4)	3		3
English Composition, Eng. (8)		4	2
†Religion, Phil. Relig. (3)	3		
{ History, Histy. (4) or	3		3
{ Elementary Law, See page 155	3		3
Public Speaking, Eng. (15)	1		1
Analytic Geometry, Math. (5)	3		3
Latin, Latin (8, 10)	5		5
Greek, Greek (5, 6)	4		4
*Modern Language, two of either French (4) German (4) or Spanish (4)	8		8
Physics, Physics (2, 4)	3	4	5

*Two modern languages are substituted for Latin and Greek in the College of General Science.

†Required only from students professing the Catholic faith.

JUNIOR.

First Semester.

	Hours Attendance Rec.	Lab.	Credits.
Logic, Phil. (1)	5		5
Ontology, Phil. (2)	3		3
Philosophy of Religion, Phil. Relig. (4)	2		2
Political Economy, Pol. Econ. (1)	2		2
Elective; Law, Law (1, 4, 6, 7, 8)	14		14
Elective; Pre-Medical, Pre-Med. (1a, 1b, 2a)	6	8	10
Elective; Pedagogy, Pedagogy (1, 2)	4		4

Second Semester.

	Hours Attendance Rec.	Lab.	Credits.
Psychology, Phil. (3)	8		8
Philosophy of Religion, Phil. Relig. (4)	2		2
Political Economy, Pol. Econ. (2)	2		2
Elective; Law, (2, 3, 5, 7, 8)	14		14
Elective; Pre-Medical (1a, 1b, 1c, 2b)	6	8	10
Elective; Pedagogy, Ped. (3, 4)	4		4

SENIOR.

First Semester.

	Hours Attendance Rec.	Lab.	Credits.
Ethics and Theodicy, Phil. (3)	8		8
Political Economy, Pol. Econ. (3)	2		2
Philosophy of Religion, Phil. Relig. (5)	2		2
Elective; Law (See pages 160 and 161)	14		14
Elective; Pre-Medical (3a, 3b, 5a, 5b)	4	7	7½
Elective; Pedagogy, Ped. (5, 6)	4		4

Second Semester.

	Hours Attendance Rec.	Lab.	Credits.
Ethics and Theodicy, Phil. (4)	8		8
Political Economy, Pol. Econ. (4)	2		2
Philosophy of Religion, Phil. Relig. (5)	2		2
Elective; Pre-Medical (3a, 4a, 4b, 5a, 5b)	5½	9	10
Elective; Law (See pages 160 and 161)	14		14
Elective; Pedagogy, Ped. (6, 7)	4		4

THIRD YEAR OF LAW

Subjects and time allotment will be found on page 161.

PHILOSOPHY.

(1) Logic.

Five Credits. Five Hours, One Semester.

(a) Dialectics. Simple Apprehensions. Terms—their Supposition. The Definitions and the Division. Judgements. Propositions—Classification according to Quantity and Quality. Opposition, Equivalence, Conversion, Reasoning,—underlying Principles. The Syllogism; its Laws and its Species. Induction. Method. The Circle.

(b) Critics. Logical Truth and Falsity. States of the mind as to truth. Certitude; Degree, Elements, Kinds. Skepticism, Universal and Partial. Consciousness. The Senses. Nominalism, Conceptualism, Realism, Ultra-Realism. Testimony. Tradition, history. The New Criticism. Reason and Revelation. The Ultimate Motive of Certitude. Evidence. Shallo's Scholastic Philosophy.

(2) Basic Ontology.

Three Credits. **Three Hours, One Semester.**

(a) Basic Ontology. Being. Analogy. Axioms. Unity, Identity, Distinction—Real and Logical. Truth. Goodness, Evil. Act and Potentiality. Essence and Existence. Possibility, Extrinsic, Intrinsic. Sources of the latter. Substance—Complete, Incomplete—Hypostasis, Person. Accident—Absolute, Relative. The Categories of Aristotle.

(b) Ontology and Etiology. The Principle. The Cause. The Condition. The Occasion. Matter—Primordial and Secondary. Form—Substantial, Accidental. Efficiency and Action. Finality. The Order of Intention and the Order of Achievement. The Exemplar. Grades of Perfection. Beauty.

(c) Cosmology. Qualities of Bodies. Quantity—Discrete and Continuous. Mathematical Divisibility. Formal Effect. Impenetrability. Space. Place. Change —Substantial, Accidental. Motion and Time. Laws of Nature. Atomism, Dynamism, Hylomorphism.

(d) Biology. Organic Life Defined. Vegetable Functions. The Vital Principle in the Plant. Its Superiority to Anorganic Forces. Sensation,—External, Internal. Imagination, Memory, Instinct, Sleep. The Rank of the Animal Soul. Origin of Species. Theory of Independent Formations. Monistic Evolution. Darwinism.

Text for (a), (b), (c) and (d) Shallo's Scholastic Philosophy.

(3) Psychology.

Eight Credits. **Eight Hours, One Semester.**

(a) The Intellect. Genesis of Ideas. Self-conscious-

ness. Judgement and Reasoning. Hypothesis of Innate Ideas. Empiricism. Ontologism. (b) The Will. Freedom. Arguments. Control over Faculties. (c) The Soul. Substantiality, Simplicity, Spirituality, Immortality. The Unity of Each Individual. Union of Body and Soul. Orgin of the Human Soul. Traducianism. Creationism. Pre-existentianism, Unity and Antiquity of the Race. Maher's Psychology.

(4) Theodicy and General Ethics.

Eight Credits. **Eight Hours, One Semester.**

(a) Existence and Nature of God. (a) Metaphysical, Physical, Moral Proofs. Aseity. Infinity, Immensity. (b) Life of God. Intelligence. The Futuribles. Will —Primary and Secondary Object. Moral and Physical Evil. (c) Action of God in the Universe. Creation, Conservation, Concurrence, Providence. Miracles.
(b) General Ethics. Nature, Object, Necessity of Ethics. Teleology, Beatitude. Human Acts. Voluntary and Involuntary Acts. Morality of Human Acts and its Determinants. Passions. Habits. Moral Obligation and its Origin. Eternal Law. Natural Law. Sanction of Law. False Norms of Morality. Utilitarianism. Hedonism. Altruism. Rickaby's Moral Philosophy.

(5) Special Ethics.

Eight Credits. **Eight Hours, One Semester.**

Duties, Worship. Internal and External Worship. False Worship. Homicide. Self-defense. Suicide. Dueling. Veracity. Charity. Rights. Private Ownership. Communism. Socialism. Agrarian Socialism.

Henry George. Herbert Spencer. Capital and Labor. Domestic Society. Matrimony. Divorce. Celibacy. Parental Authority, Education. Relation of Master and Servant. Civil Society; its Nature and Origin. False Theories of Hobbes, Rousseau, Locke. Forms, Scope, Aim, Functions of Civil Government. Suffrage. Liberty of Opinion, of the Press, of Worship, of Association. International Law. Church and State. Rickaby's Moral Philosophy.

POLITICAL ECONOMY.

(1) Definition.

One Credit. **Two Hours, One-Half Semester.**

Method. Schools. Wealth. Value, Price. Production and Factors of Production. Exchange. Burke, Political Economy.

(2) Money and Prices.

One Credit. **Two Hours, One-Half Semester.**

Gresham's Law. Bimetallism and Monometallism. Inflation. Contraction. Depreciation. Multiple Tender. Credit. Burke, Political Economy.

(3) Banks and Banking.

One Credit. **Two Hours, One-Half Semester.**

The Banking system of the United States and those of some other countries. Remedies for the present system of banking. International Trade. Balance of trade and accounts. Protection and Free Trade. Transportation. Railroads. Government Ownership. Corporations. Trusts. Burke, Political Economy.

(4) Revenue.

One Credit. Two Hours, One-Half Semester.

Taxation. Public Debts. Insurance. Spending. Saving. Poverty. Distribution. Rent. Interest. Profits. Wages. Burke, Political Economy.

SOCIOLOGY.

(1) Socialism and Trade Unions.

Two Hours, One-Half Semester.

A lecture course dealing with the history, development and trend of Socialism and Trade Unionism. This course involves copious collateral reading and the verification of inferences by investigation into the aspirations and methods of present day representatives of the movements studied.

(2) Capitalism.

Two Hours, One Semester.

A course dealing with the history and estimation of accumulated private wealth and following it to its present day forms and characteristics.

(3) Condition of the Wage Earners.

Two Hours, One-Half Semester.

This course examines into the actual condition of the working classes and implies an investigation into the helpful and hindering influences which affect the workers and the consideration of the efficacy of present day methods for the betterment of the condition of the wage earners.

(4) Co-operation. Competition and Combination.

Two Hours, One-Half Semester.

A more critical and profound examination into the basic principles of present day economic institutions and of the reforms suggested to remedy their defects.

PHYSICS.

(1) Mechanics, Molecular Physics, Sound.

Three Credits. Three Hours, One Semester.

General principles of matter. General properties of Bodies. Equilibrium. Gravity. The balance. Laws of falling bodies. Pendulum. Properties peculiar to Solids. Hydrostatics. Capillarity, endosmose, diffusion, absorption. Hydro-dynamics. The property of of gases. Aerodynamics. Production, propagation and of gases Aerodynamics. Production, propagation and reflection of sound. Measurement of the number of vibrations. The physical theory of music. Reed & Guthe's College Physics.

(2) Light, Heat, Electricity.

Three Credits. Three Hours, One Semester.

Transmission, velocity, intensity and reflection of light. Mirrors. Single refraction. Lenses. Dispersion and achromatism. Optical instruments. The eye. Sources of light. Phosphorescence. Double refraction. Interference and polarization. Properties of magnetism. Methods of magnetism. Laws of magnetic action. Terrestrial magnetism. Fundamental principles of frictional electricity. Quantitative laws of electric

action. Distribution. Electrostatic induction of influence. Electric machines. Condensation of electricity. Voltaic cell. Its modifications. Magnetic field due to current. Galvanometers. Ohm's law. Conversion of electric energy into heat. Thermo-electricity. Electro-dynamics. Electro-magnets. Magnetization of iron. Telegraphy. Electro-magnetic induction. Passage of electricity through gases. Magneto- and dynamo-electric machines. Diamagnetism. Connection between electricity and light. Physiological action of the current. Animal electricity. Reed & Guthe's College Physics.

(3) Physical Measurements.

Two Credits. **Four Hours, One Semester.**

The use of scales. The straight and barometer vernier. The spherometer. Micrometer wire gauge. The Cathetometer. The micrometer and compound microscope. Angular measurements. The circular vernier, the optical lever. Poggendorff's method and the spirit level. Estimation of mass. General theory of the balance. Weighing by vibrations. Exact weights and errors in weighing. Measurement of area and volume. Determination of density. Relative densities. Elasticity, tenacity and capillarity. Determination of atmospheric pressure. Time, gravitation and moments of inertia. Pendulum. Determination of gravity by Kater's and Bessel's method. Determination of the velocity and pitch of sound. Reed & Guthe's Manual of Physical Measurements.

(4) Physical Measurements.

Two Credits. Four Hours. One Semester.

Elementary electro-statics. Electrification by friction, conduction and induction. Magnetism. Determination of horizontal force and magnetic moment. Fundamental experiments in Voltaic electricity. The galvanoscope and the galvanometer. Determination of E. M. F. Wheatstone's bridge. Calibration of galvanoscope. Measurements of resistance. The high resistance differential astatic galvanometer. Measurement of galvanometer resistance. Thomson's method. Differential method. Use of side meter bridge. Carey Foster's method. Measurement of very low resistances. The method of comparison of potentials, projection of equal potentials and auxiliary conductors. Measurement of high resistances. The direct deflection method. Electrolyte resistance. Electrolytic resistance by alternating currents. The tangent galvanometer. Use of the standard galvanometer and the determination of E. M. F. Application of Joule's law. Use of potential galvanometer. Determination of the magnetic elements. Electro-magnetism and electro-magnetic induction. Action of linear current on magnet. Biot and Savart's law. Proof of electro-magnetic laws. Magnetic action of a solenoid. Laws of the electro-magnet. Induction experiments. Induction balance of Hughes. Damping. Comparison of resistance by magneto conductor. Use of earth inductor. Study of magnetic distribution. The condenser. Determination of the absolute capacity of a condenser. Electrometers. Reed & Guthe's Manual of Physical Measurements.

MATHEMATICS.

(1) Plane Trigonometry.

Three Credits. **Three Hours, One Semester.**

A course in Plane Trigonometry with many applications so as to give a thorough review of algebra and geometry. Practical problems. Wentworth's Plane & Spherical Trigonometry.

(2) Spherical Trigonometry.

Three Credits. **Three Hours, One Semester.**

A brief course intended to familiarize the student with Spherical Trigonometry and some of its applications.

Wentworth's Plane and Spherical Trigonometry.

(3) College Algebra.

Three Credits. **Three Hours, One Semester.**

A course containing the usual matter and methods of Advanced Algebra, special attention being given to graphical methods. Hawkes' Advanced Algebra.

(4) Analytic Geometry.

Three Credits. **Three Hours, One Semester.**

A course covering the general principles and more practical applications of Plane Analytic Geometry.

(5) Analytic Geometry and Calculus.

Three Credits. **Three Hours, One Semester.**

A brief course of Solid Analytic Geometry and elementary Calculus intended to acquaint the student with the methods of higher mathematics.

(6) Differential Calculus.

A course intended for Juniors not taking either Law or Pre-Medical and covering thoroughly the theoretical parts of the subject.

(7) Integral Calculus.

Three Credits. **Three Hours, One Semester.**

A course similar to course 5 in Integral Calculus.

For other Courses in Mathematics cf. The College of Engineering.

CHEMISTRY.

(1) General and Inorganic Chemistry.

Three Credits. **Three Hours, One Semester.**

Discussion of Fundamental Laws, Mathematics of Chemistry. Ordinary elements studied from the standpoint of the periodic law. McPherson & Henderson College Chemistry.

(2) Laboratory.

Three Credits. **Four Hours, One Semester.**

Practical demonstration of laws and theories enunciated in Course 1. Newth's Manual of Analysis.

(3) Analysis A.

One Credit. **Four Hours, One-Half Semester.**

Dry methods of analysis; detection of metals, non-metals and acid radicals. Use of blowpipe.

(4) General and Inorganic Chemistry.

Three Credits. **Three Hours, One Semester**

Ordinary and the rarer elements from the standpoint of the periodic law. Metallurgy, with particular adaption to the needs of Engineering Students. McPherson & Henderson, College Chemistry.

(5) Laboratory.

One Credit. **Four Hours, One-Half Semester.**

Practical demonstration of principles discussed in Course 4. Manufacture of Iron, Steel, Cement, Gas, Lubricators, Distillate, Pigments, and Alloys. Newth's Manual of Chemical Analysis.

(6) Analysis B.

One Credit. **Four Hours, One-Half Semester.**

Qualitative and quantitative analysis. Gravimetric, volumetric and electrolytic methods. Preparation of normal solutions. Fire Assay methods. Newth's Manual of Chemical Analysis.

(7) Organic Chemistry.

Three Credits. **Three Hours, One Semester.**

Constitution, classification, decomposition and synthesis of organic compounds. Homologous Series. Paraffins and derivatives. Hydroxy-acids. Carbohydrates. Kinds of Isomerism. Mixed compounds containing Nitrogen. Unsaturated compounds. Olefins, Acetylenes and principal derivatives. Aromatic compounds. Benzine and derivatives. Phenyl-Methanes and aniline dyes. Hydrocarbons containing two Benzene residues. Glucosides, Proteins and Alkaloids. Remsen's Organic Chemistry.

(8) Experimental Organic Chemistry.

Two Credits. **Four Hours, One Semester.**

Detection of carbon, hydrogen, nitrogen, chlorine, sulphur and phosphorus in organic compounds. Practical demonstration of properties, tests, combinations and decompositions of organic compounds. Preparation and study of typical organic substances. Special reference to methods of physiological Chemistry.

This course accompanies Course 8. Newth's Manual of Chemical Analysis.

(9) Experimental Chemistry II.

Two Credits. **Four Hours, One Semester.**

Gravimetric analysis. Preliminary manipulations. Typical determinations of metals and of acids. Electrolytic method of analysis. Volumetric analysis Standard and normal solutions. Indicators. Calibration of vessels. Methods based upon saturation, oxidation and reduction, precipitation. Gas analysis. Estimation of carbon, hydrogen, nitrogen, chlorine, sulphur, phosphorus, and organic compounds. Determination of molecular weights. Newth's Manual of Chemical Analysis.

ENGLISH.

(1) English Poetry.

Three Credits. **Three Hours, One Semester.**

Its nature and kinds especially the epic, the drama, the lyric. Metre and verse.

(2) Argumentation and Oratory.

Three Credits. **Three Hours, One Semester.**

Invention arrangement and development of thought; a course presenting the principles of reasoning and persuasion.

(3) Rhetoric.

Three Credits. **Three Hours, One Semester.**

Exposition and description. The Essay. Sources and presentation of material.

(4) Narration.

Three Credits. **Three Hours, One Semester.**

The Short Story.

(5) Composition.

Two Credits.

Practice in verse composition of the simpler forms. Three themes and one longer composition weekly.

(6) Composition.

Two Credits.

Exercises in brief-making and the writing of speeches. Three themes and one longer composition weekly. Two speeches of considerable length during the semester.

(7) Composition.

Two Credits.

Essays and exercises in exposition and description. One essay and three exercises are to be done each week.

(8) Composition.

Two Credits.

Three exercises in narration each week. Three short stories during the course.

(9) Thesis.

Three Credits.

A thesis of at least 5000 words on a subject chosen by the student with the approval of the Dean of the Faculties and the Professor. The thesis will be governed by the general regulation for theses on page 47. Its completion is a necessary pre-requisite for taking the oral examination in this department.

(10) English Literature.

Two Credits. **Two Hours, One Semester.**

From the earliest period to the Norman Conquest. Lectures and recitations.

(11) English Literature.

Two Credits. **Two Hours, One Semester.**

From the Norman Conquest to 1780. Lectures and recitations.

(12) English Literature.

Two Credits. **Two Hours, One Semester.**

From 1780 to 1830. Rise and Development of the Comedy and Drama. Lectures and recitations.

(13) English Literature.

Two Credits. **Two Hours, One Semester.**

From 1830 to the present time. Lectures and recitations. American Literature. Development of Eng-

lish fiction. Critical analysis and study of the characteristic features of selected authors.

(14) Public Speaking and Interpretation.

Two Credits. **One Hour, Both Semesters.**

The Voice, Enunciation, Inflection. Tone-Color. Gesture.

(15) Public Speaking.

Two Credits. **One Hour, Both Semesters.**

A continuation of Course 14.

(16) An Oral Examination

On the subject matter of courses 1, 2, 3, 4, 10, 11, 12, 13, 14. The examination lasts 20 minutes and is a prerequisite for the granting of any credit in this department.

LATIN.

(1) Virgil—The Aeneid.

Four Credits. **Four Hours, One Semester.**

After reading books VII—XII, the poem will be studied as a whole, special attention being given to the sources, to the epic technique and literary art of Virgil and to the tracing of his influence in the literature of the world.

(2) Rapid Reading 1.

One Credit, **One Hour, One Semester.**

A course intended to give to the student a broad

knowledge of Roman life and literature and to facilitate the study of Latin sources.

(3) Latin Composition 1.

One Credit, **One Hour, One Semester.**

Composition in narration and description based chiefly on the text of the Aeneid and implying a discrimination of the vocabulary and syntax of prose and verse. Students will write three compositions weekly.

(4) The Latin Historians.

Four Credits. **Four Hours, One Semester.**

Copious readings in Sallust, Curtius, Pliny and Livy, with critical consideration of the historical works of these writers and collateral reading directed to reach an appreciation of their place in Latin literature.

(5) Rapid Reading 2.

One Credit. **One Hour, One Semester.**

The complete works of Tacitus will be read in this course.

(6) Latin Composition 2.

One Credit. **One Hour, One Semester.**

A continuation of Course 3, but based on the Latin historians.

(7) Cicero.

Three Credits. **Four Hours, One Semester.**

The orations studied as models of oratorical art; rapid reading, analysis, discussion, criticism.

(8) Horace.

Three Hours, One Semester.

The Odes, Books I—IV, will be read and carefully studied. Students will memorize selected odes and portions of odes. Such phases of Roman life as are suggested will be the subject of collateral reading under the direction of the professor.

(9) Latin Composition.

Two Credits. **Two Hours, One Semester.**

Written work on subjects assigned by the professor will be required three times a week. Students will be expected to show facility and elegance of diction in their written work.

(10) Thesis.

Five Credits.

At the beginning of the second Semester of the Sophomore year, the professor after consulting with the students shall assign to each a thesis implying copious reading in Latin. The Thesis shall be typewritten and contain at least 6000 words.

GREEK.

Note: Greek is required only for those students who intend to proceed to the degree of Bachelor of Arts.

(1) Simple Greek Prose.

Four Credits. **Four Hours, One Semester.**

Selections are taken from the Anabasis, Chrysostom,

Plato, Gregory and Nazianzen. This course is open to those who have completed the course of Elementary Greek.

(2) Simple Greek Poetry.

Four Credits. **Four Hours, One Semester.**

Elegies of Gregory, Nazianzen, Idylls of Theocritus, selected portions of the Odyssey of Homer. In this course, Greek life and customs are studied in detail, special attention being given to the various dialects.

(3) Simple Greek Composition.

Two Credits. **One Hour, Both Semesters.**

Systematic training in the writing of simple Greek, with copious imitations taken from authors studied in Courses 1 and 2.

(4) Greek Literature, I.

Four Credits. **Four Hours, One Semester.**

Reading of selected portions of the Odyssey and Iliad, Sophocles, Pindar, and Euripides. In this course special attention is given to the Greek epic as a whole and Greek tragedy and lyric poetry are studied in detail.

(5) Greek Literature, II.

Four Credits. **Four Hours, One Semester.**

Representative types of the Grecian orators, Chrysostom, Basil, Demosthenes, will be carefully read and studied as a whole.

(6) Rapid Reading.

One Credit. **One Hour, Both Semesters.**

Sight reading of the easier portions of the Greek historians, and written compositions in imitation.

HISTORY.

(1) European History, 1305-1563.

Two Credits. **Two Hours, One Semester.**

Exile of the Papacy and the Great Western Schism. The Hundred Years War. The Wars of the Roses. Consolidation of the European Monarchies. The Inquisition. The Renaissance. General character of the period. The Age of Charles V. The Protestant Revolution and the Catholic Revival.

(2) European History, 1563-1714.

Two Credits. **Two Hours, One Semester.**

The Hugenot War in France. Philip II., Mary Stuart and Elizabeth. The Thirty Years War. The Puritan Revolution. The Age of Louis XIV.

(3) European History, 1714-1800.

Two Credits. **Two Hours, One Semester.**

The Hanoverian Succession. The making of Russia. Mary Teresa and Frederick II. Wars of the Suppression. The colonies in North America. The Seven Years War. The Division of Poland. Progress of the Political and Social Revolution of the Eighteenth Century. The American War of Independence. The French Revolution.

(4) European and American History, 1800.

Two Credits. **Two Hours, One Semester.**

The Era of Napoleon I. Catholic Emancipation in Great Britain. The Revolution of the Barricades and of the Cabinet. The Civil War in the United States and its causes. Our own times.

Lectures on the moral, political, economic, and social aspects of these periods of history, are given twice every week. The subjects enumerated are studied in detail.

PHILOSOPHY OF RELIGION, EVIDENCES, MORALS.

(1) The Essentials of Christian Doctrine, 1.

Two Credits. **Two Hours, One Semester.**

Various Creeds. The Apostle's Creed. Each Article of the Creed is studied in particular, attention being given to any subject bearing directly on these articles, as Sin, The Powers of the Church, Infallibility, etc. Martin's Catholic Religion.

(2) The Essentials of Christian Doctrine, 2.

Two Credits. **Two Hours, One Semester.**

The Law of God. What is commanded and forbidden by the Decalogue is studied in detail. The Precepts of the Church, Grace, Prayer, and each of the Seven Sacraments together with collateral subjects. Martin's Catholic Religion.

(3) Truth of the Catholic Religion.

Four Credits. Two Hours, Both Semesters.

(a) Christianity a revealed religion. What Religion is. What Revelation is. Kinds of revelations. What revelation necessary to know truths above human ken. Man's attitude toward Revelation. Primitive, Patriarchal, Mosaic Revelation. The Divine origin of Pre-Christian Revelation. The Christian Revelation; its origin, evidences of divinity of its origin.

(b) The Church. The Dispenser of the Christian Religion. Institution of the Church. End of the Church. Constitution of the Church. Marks of the Church. The teaching office of the Church. Sources of the Church's teaching. The rule of Faith. Wilmer's Handbook of the Christian Religion.

(4) Christian Dogma.

Four Credits. Two Hours, Both Semesters.

(a) God the Author and Restorer of our Salvation. The existence, nature, and attributes of God. The Divine Trinity. God the Creator of the universe. Various grades of creation. The spiritual and material world. Man. Relation of different orders of creation to one another. God the Redeemer of the fallen man. Decree and plan of redemption. The Redeemer, one person and two natures. The work of redemption.

(b) The Plan of Redemption as realized in Individuals. Grace, actual, habitual or sanctifying. The Sacraments as a means of Grace. The Sacraments are studied in general—their matter and form,—their efficacy and the dispositions requisite to receive them validly and with fruit. Then each Sacrament is studied in

detail. The Church as a means of salvation. The four last things. Wilmer's Handbook of the Christian Religion.

(5) Christian Morals.

Four Credits. **Two Hours, Both Semesters.**

(a) Christian Morals in General. Law as the objective norm of human actions. Conscience as the subjective norm of human actions. The conditions of morality. Moral good and moral evil.

(b) Christian Morals in Particular. The Christian's duties toward God,—Faith, Hope, Charity. Religion. Direct and indirect acts of worship. The Church as the controller of religious worship. Duties towards ourselves and our neighbor,—general and particular.

(c) Works of supererogation or Christian perfection. Wilmer's Handbook of the Christian Religion.

MODERN LANGUAGES.

French.

(1) Elementary French, I.

Four Credits. **Four Hours, One Semester.**

In this course the student is carefully drilled in elementary grammar up to the irregular verbs, attention also being given to acquiring a vocabulary of the more common words.

(2) Elementary French, II.

Four Credits. **Four Hours, One Semester.**

A continuation of the preceding course. Special

attention is given to the more important irregular verbs, the memorizing of words, and translation of French into English and vice versa.

(3) Intermediate French, I.

Four Credits. **Four Hours, One Semester.**

A thorough review of grammar and syntax. The object of this course is to acquaint the student with the scientific vocabulary and enable him to read the more simple scientific French.

(4) Intermediate French, II.

Four Credits. **Four Hours, One Semester.**

This course continues the work begun in Course 3. Regular exercises are given in written work and copious reading is made from the standard scientific works in order to fit the student for professional reading.

(5) Advanced French, I.

Four Credits. **Four Hours, One Semester.**

A thorough review is made of Courses 1 and 2, by means of conversational exercises, sight reading and written exercises. Selections are read from the more noted French writers.

(6) Advanced French, II.

Four Credits. **Four Hours, One Semester.**

A continuation of Course 5, with conversational exercises and copious readings from the French authors.

German.

(1) Elementary German, I.

Four Credits. **Four Hours, One Semester.**

Elements of German Grammar. Drill in pronunciation. Vocabulary.

(2) Elementary German, II.

Four Credits. **Four Hours, One Semester.**

A continuation of Course 1. Syntax, Oral and written exercises. Reading from the more simple German prose.

(3) Intermediate German, I.

Four Credits. **Four Hours, One Semester.**

Review of syntax. Translation. Oral and written exercises. Reading from the German scientific works to acquire a technical vocabulary.

(4) Intermediate German, II.

Four Credits. **Four Hours, One Semester.**

Reading and written and oral exercises in technical German. This course aims at preparing the student to undertake the reading of the more difficult scientific works.

(5) Advanced German, I.

Four Credits. **Four Hours, One Semester.**

A study of the German prose authors with copious selected reading.

(6) Advanced German, II.

Four Credits. Four Hours, One Semester.

A more extensive course in German literature, especially in German poetry.

Spanish.

(1) Elementary Spanish, I.

Four Credits. Four Hours, One Semester.

Elements of Spanish grammar. Drill in pronunciation, Vocabulary.

(2) Elementary, II.

Four Credits. Four Hours, One Semester.

A continuation of Course 1. Syntax, oral and written exercises. Reading from the simpler Spanish prose.

(3) Intermediate Spanish, I.

Four Credits. Four Hours, One Semester.

Review of grammar and syntax. Translation. Oral and written exercises. Reading from somewhat difficult Spanish prose.

(4) Intermediate Spanish, II.

Four Credits. Four Hours, One Semester.

Reading, written and oral exercises.

(5) Advanced Spanish, I.

Four Credits. Four Hours, One Semester.

A study of Spanish prose authors with copious reading.

(6) Advanced Spanish, II.

Four Credits. Four Hours, One Semester.

Spanish Poetry.

College of Engineering

COLLEGE OF ENGINEERING

The foundation of the College of Engineering in the University of Santa Clara was the result of repeated and urgent requests that opportunities should be given young men, ambitious to follow the Engineering profession, to pursue and complete the studies leading thereto in an environment and atmosphere conducive as well to deep persevering study as to cultural and moral deveopment.

To meet this demand, the Faculty of the University has added sound and thorough courses in Architectural, Civil, Electrical and Mechanical Engineering. Each of these departments is in the hands of experienced and practical engineers who devote their whole time and attention to the success of their work. As is traditional at Santa Clara, students in Engineering are given individual care, assistance, advice and encouragement. The work exacted is of the highest type; nevertheless, owing to this individual care and to the judicious admission of students as well as the prompt elimination from the various departments of students found to be inadequately prepared in fundamental studies or in seriousness of purpose, there is very little likelihood and no excuse for failure on the part of the student.

The demand for engineers is today greater than ever before. Owing to the vast extent of our State and of the neighboring States, as well as of Alaska on the North and the great Mexican and Central American Republics on the South, with which California is so in-

timately connected, and owing moreover to the fact that these countries are as yet comparatively undeveloped and that California, on account of her unexcelled climate and almost unlimited natural sources of power, is bound to take her place among the foremost manufacturing states of the Union, it is evident that this demand for first class engineers will go on increasing for many decades to come. Logically it is California that should supply a very great proportion of this demand. The young men of our State have, therefore, a most powerful incentive to enter the engineering profession in its various branches, in which, granted a broad and thorough preparation, they are assured of success.

That this preparation can be given by mere trade schools is no longer contended. The engineer today must be more than a machinist, electrician or surveyor. He can no longer be a self-made man in the old sense. His mind must possess the acumen and culture which only a broad college training and college association can give, and his acquaintance with and love of mathematics and science should be the foundation on which his knowledge of their technical applications is based.

This is the ideal which Santa Clara cherishes for the engineers who shall receive their education from her.

COURSES.

Four year Courses are offered leading to the degrees of Bachelor of Science in Architectural Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering and Bachelor of Science in Mechanical Engineering. These courses aim, first, to give the student a thorough knowledge of the

sciences on which all Engineering is based, second, to develop his ability to acquire accurate information, third, to develop his judgment by practical work so that he may be able to use his knowledge and information to the best advantage.

ARCHITECTURAL ENGINEERING.

The Course in Architectural Engineering gives facility in the application of the fundamental principles of beauty and strength to buildings. Architectural forms and principles and their application in Architectural design are taken up, together with the strength of materials and the design of trusses, columns and reinforced concrete, the whole enabling the student to produce correct, beautiful and economical works of Architecture.

CIVIL ENGINEERING.

Civil Engineering covers the field of structural work (steel, concrete and stone buildings and bridges), municipal engineering (roads, pavements and sewers), water power development, irrigation and railroad construction. These are all based on the fundamental sciences of Mathematics, Physics and Chemistry, and as much practice as possible is given to facilitate the application of these sciences to professional work.

ELECTRICAL ENGINEERING.

Electrical Engineering has to do with the design and construction of electrical machinery and the various applications of electricity to the arts. Electrical and Mechanical Engineering are so closely interrelated that

the courses of the first three years are the same, and it is only the Senior courses, such as Telephony and pure Electrical design, that are differentiated from the Mechanical Engineering courses.

MECHANICAL ENGINEERING.

Mechanical Engineering may be divided into three closely related lines, Design, Manufacturing and Power Generation. The courses in Design begin with mechanical drawing and continue with a study of mechanisms, strength of materials, stresses in, adaptability, cost, and commercial worth of machines. Manufacturing has to do with the organization of commercial enterprises, systems of works management, efficiency systems, cost of materials and power and layout of machinery in a factory for maximum output. The subject of Power Generation is covered by courses on steam and gas engines, turbines, boilers, water motors and electric generators, together with the proper operation of all classes of machinery and the application of power thereto.

ENTRANCE REQUIREMENTS.

Applicants for admission to the Freshman Year of the College of Engineering must either (1) have completed the regular Four-Year High School course of the Preparatory School of the University, or (2) have completed a similar course in an accredited High School, or (3) pass an examination based on a four-year course amounting in the aggregate to sixteen units. Of these sixteen units, ten or more are prescribed and required of all applicants; the rest are elective from the list of optional subjects.

SUBJECTS PRESCRIBED.

English	3 units
History	2 units
Foreign Languages	2 units
Algebra	1½ units
Geometry	1½ units
Physics	1 unit

ELECTIVES.

Chemistry	1 unit
Foreign Languages	2 units
English	1 unit
History	2 units
Trigonometry	½ unit

To count a "unit" a subject must be taught five times a week, in periods of not less than forty-five minutes, for a school year of not less than thirty-six weeks.

CONDITIONS.

In certain cases, at the discretion of the Committee on Entrance Standing, which shall decide on the merits of each particular case, conditions in elective branches to the amount of not more than two units may be allowed. All conditions must, however, be removed by the end of the Freshman year.

Every applicant should forward his application to the President, enclosing a certificate of the studies he has completed with a testimonial as to his character and diligence, signed by the Principal of the school last attended.

The articles which each student who comes to

reside at the University should bring with him are, more or less: two pairs of sheets, three pillow cases, two counterpanes, three suits of clothes, a sufficient number of shirts, drawers, handkerchiefs, socks, shoes, napkins, towels, combs, brushes, etc., all, without exception, marked distinctly and imperishably with his name.

Promptness in reaching the University on the day fixed for the opening of classes is necessary. It is essential that Parents and Students understand this clearly from the beginning of their connection with the University, as promptness in returning from vacations and recesses, which is requisite in order to prevent the loss of valuable time and the forming of habits of procrastination and negligence of duty, is strictly insisted on.

REQUIREMENTS FOR GRADUATION.

CREDITS.

In all of the groups of the College of Engineering, 176 credits are required for graduation. A credit is given for each one-hour recitation, or lecture (requiring one hour preparation) per week, carried satisfactorily for one semester, or for two hours per week, spent in a laboratory, drawing room or shop, for one semester.

REQUIRED SUBJECTS.

The subjects required for graduation are given under appropriate headings on the following pages.

GRADES.

Semester grades are expressed on a basis of 100 for perfect work.

70 is required for passing.

60-70 indicates a condition.

Below 60 indicates a failure.

A student making 70 or more in any course is given the credits for that course. If he makes from 60 to 70 he must pass a satisfactory examination at the time set for condition examinations or receive a failure in the subject.

If the condition is received in a laboratory course, the student must make up the work in which he is deficient before the time of the condition examinations, or receive a failure.

A failure in a subject means that the student must repeat the subject in class the next time it is given.

Students, who, on account of ill-health or other cause, are not able to carry 22 credits a semester, will be allowed to carry a lighter course, which will enable them to graduate in five years.

REQUIRED COURSES.

FRESHMAN YEAR OF ALL FOUR YEAR COURSES.

First Semester.

	Hours Attendance		
	Rec.	Lab.	Credits.
College Algebra, Eng. Math. (1)	3		3
Trigonometry, Eng. Math. (2)	2		2
Chemistry, Chem. (1)	3	4	5
Mechanical Drawing, M. E. (1)		6	3
French, German or Spanish, M. Lang. (1), (3) or (5)	4		4
English, Eng. (1)	4		4

	Hours Attendance Rec.	Lab.	Credits.
Review of Engineering Industries, M. E. (9)	1		1

Second Semester.

Analytic Geometry, Eng. Math. (3)	5		5
Chemistry, Chem. (2)	3	4	5
Descriptive Geometry, M. E. (2)	1	4	3
English, Eng. (2)	4		4
French, German or Spanish, M. Lang. (2), (4) or (6)	4		4
Review of Engineering Industries, M. E. (9a)	1		1

ARCHITECTURAL ENGINEERING.

SOPHOMORE YEAR.

First Semester.

	Hours Attendance Rec.	Lab.	Credits.
Calculus, Eng. Math. (4)	5		5
Technical Mechanics, C. E. (7)	3		3
Physics, Physics (1)	3	4	5
English, Eng. (3)	3		3
Construction, Arch. (10)	2		2
Descriptive Geometry, Arch. (1)		4	2
Design, Arch. (2)		4	2

Second Semester.

Calculus, Eng. Math. (5)	5		5
Technical Mechanics, C. E. (8)	3		3
Physics, Phy. (2)	3	4	5

	Hours Attendance Rec.	Lab.	Credits.
English, Eng. (4)	3		3
Construction, Arch. (11)	2		2
Design, Arch. (3)		4	2
Free Hand Drawing, Arch. (7)		4	2

JUNIOR YEAR.

First Semester.

Mechanics of Materials, C. E. (9) and (11)	3	4	5
Masonry, C. E. (20)	5		5
Graphic Statics, C. E. (18)	2	2	3
Structural Design, C. E. (14)		2	1
Architectural Design, Arch. (4)		8	4
Philosophy, Phil. (1)	4		4

Second Semester.

Graphic Statics., C. E. (19)	2	2	3
Structural Design, C. E. (15)		4	2
Pictorial Drawing, Arch. (24)	1	4	3
Architectural Design, Arch. (5)		8	4
Philosophy, Phil. (2)	5		5
Elective			3
Fireproofing, Arch. (13)	2		2

SENIOR YEAR.

First Semester.

Trusses, C. E. (22)	4		4
Concrete, C. E. (27)	2	2	3
History of Architecture, Arch. (8)	2		2
Heating and Ventilation, M. E. (25)	2		2
Sanitation, Arch. (12)	2		2

	Hours Attendance Rec.	Lab.	Credits.
Interior Decoration, Arch. (14)	2		2
Design, Arch. (6)		8	4
Philosophy, Phil. (3)	3		3

Second Semester.

History of Architecture, Arch. (9)	2		2
Political Economy, Pol. Econ. (1)	1		1
Business Law, Law (1)	1		1
Contracts and Specifications, C. E. (31)	2		2
Thesis, Arch. Thesis			6
Philosophy, Phil. (4)	4		4
Elective			6

CIVIL ENGINEERING.

SOPHOMORE YEAR.

First Semester.

	Hours Attendance Rec.	Lab.	Credits.
Calculus, Eng. Math. (4)	5		5
Technical Mechanics, C. E. (7)	3		3
Physics, Phy. (1)	3	4	5
Geology, Geol. (1)	2		2
Surveying, C. E. (1)	1	2	2
Drawing, C. E. (12)		4	2
English, Eng. (3)	3		3

Second Semester.

Calculus, Eng. Math. (5)	5		5
Technical Mechanics, C. E. (8)	3		3
Physics, Phy. (2)	3	4	5

	Hours Attendance Rec.	Lab.	Credits.
Mineralogy, Geol. (2)	3		3
Surveying, C. E. (2)	1	2	2
English, Eng. (3)	3		3
Drawing, C. E. (13)		2	1

JUNIOR YEAR.

First Semester.

Mechanics of Materials, C. E. (9)	3		3
Masonry, C. E. (20)	5		5
Graphics, C. E. (18)	2	2	3
Differential Equations, Eng. Math. (6)	2		2
Field Engineering, C. E. (3)	1	4	3
Structural Design, C. E. (14)		2	1
Materials Testing Laboratory C. E. (10)		2	1
Philosophy, Phil. (1)	4		4

Second Semester.

Hydraulics, C. E. (21)	3	2	4
Electricity, E. E. (14)	2	2	3
Graphics, C. E. (19)	2	2	3
Method of Least Squares, Eng. Math. (7)	2		2
Field Engineering, C. E. (4)	1	4	3
Structural Design, C. E. (15)		4	2
Philosophy, Phil. (2)	5		5

SENIOR YEAR.

First Semester.

Roofs, Bridges and Other Trusses, C. E. (22)	4		4
Roads and Pavements, C. E. (24)	2		2

	Hours Attendance		
	Rec.	Lab.	Credits.
Sewers and Sanitation, C. E. (25)	2		2
Geodesy and Astronomy, C. E. (26)		2	1
Concrete and Reinforced Concrete, C. E. (27)	2	2	3
Engineering in Field, C. E. (5)		6	3
Design, C. E. (16)		4	2
Tunneling, C. E. (28)	2		2
Philosophy, Phil. (3)	3		3

Second Semester.

Roofs, Bridges and Other Trusses, C. E. (23)	4		4
Political Economy, Pol. Econ. (1)	1		1
Business Law, Law (1)	1		1
Irrigation, C. E. (29)	2		2
Railway Construction, C. E. (30)	3		3
Estimates and Specifications, C. E. (31)	2		2
Engineering in Field, C. E. (6)		4	2
Thesis, C. E. (17)			3
Philosophy, Phil. (4)	4		4

Note. A month of practical field-work under actual conditions at the University farm at Loyola, in the foot-hills of Santa Clara County, is required during the vacation at the close of the Junior and of the Senior year.

The credits of the Junior and Senior years are not complete without these courses, unless the student has had the equivalent in actual practice in civil engineering.

ELECTRICAL AND MECHANICAL ENGINEERING.

SOPHOMORE YEAR.

First Semester.

	Hours Attendance Rec.	Lab.	Credits.
Calculus, Eng. Math. (4)	5		5
Technical Mechanics, C. E. (7)	3		3
Physics, Physics (1)	3	4	5
Kinematics, M. E. (3)	2		2
English, Eng. (3)	3		3
M. E. Laboratory, M. E. (15)		4	2
Shopwork, M. E. (10)		4	2

Second Semester.

Calculus, Eng. Math. (5)	5		5
Technical Mechanics, C. E. (8)	3		3
Physics, Physics (2)	3	4	5
Drawing, M. E. (4)	1	4	3
English, Eng. (4)	3		3
Shopwork, M. E. (11)		6	3

JUNIOR YEAR.

First Semester.

Mechanics of Materials, C. E. (9)	3		3
Machine Design, M. E. (5)		4	2
Boilers, M. E. (18)	2		2
Electrical Measurements, Physics (3)	2		2
Electric Machinery, E. E. (1)	2		2
Differential Equations, Eng. Math. (6)	2		2
E. E. Laboratory, E. E. (9)		2	1
Materials Testing Laboratory, C. E. (11)		2	1
Shopwork, M. E. (12)		4	2
Philosophy, Phil. (1)	4		4

Second Semester.

	Hours Attendance Rec.	Lab.	Credits.
Hydraulics, C. E. (21)	3	2	4
A. C. Machinery, E. E. (2)	3		3
Steam and Gas Machinery, M. E. (19)	3		3
E. E. Laboratory, E. E. (10)		4	2
E. E. Laboratory, E. E. (10)		2	1
Machine Design, M. E. (6)		4	2
M. E. Laboratory, M. E. (16)		2	1
Shopwork, M. E. (13)		4	2
Surveying, C. E. (32)		2	1
Philosophy, Phil. (2)	4		4

ELECTRICAL ENGINEERING.

SENIOR YEAR.

First Semester.

	Hours Attendance Rec.	Lab.	Credits.
Thermodynamics, M. E. (20)	4		4
Internal Combustion Engines and Automobiles, M. E. (21)	2		2
Industrial Engineering, M. E. (23)	2		2
Electrical Design, E. E. (6)		4	2
Alternating Currents, E. E. (3)	3		3
Telephony, E. E. (4)	1		1
E. E. Laboratory, E. E. (11)		4	2
Graphics, C. E. (18)	2	2	3
Philosophy, Phil. (3)	3		3

Second Semester.

Power Plant Design, E. E. (7)	1	4	3
Electric Railways, E. E. (5)	2		2

	Hours Attendance Rec.	Lab.	Credits.
Electrical Design, E. E. (8)		4	2
E. E. Laboratory, E. E. (12)		4	2
Hydraulic Motors, M. E. (22)	2		2
Business Law, Law (1)	1		1
Contracts and Specifications, C. E. (31)	2		2
Political Economy, Pol. Econ. (1)	1		1
Technical Literature, E. E. (13)	1		1
Thesis, E. E. Thesis			4
Philosophy, Phil. (4)	4		4

MECHANICAL ENGINEERING.

SENIOR YEAR.

First Semester.

	Hours Attendance Rec.	Lab.	Credits.
Thermodynamics, M. E. (20)	4		4
Internal Combustion Engines and Automobiles, M. E. (21)	2		2
Industrial Engineering, M. E. (23)	2		2
Alternating Currents, E. E. (3)	3		3
Machine Design, M. E. (7)		4	2
Graphics, C. E. (18)	2	2	3
M. E. Laboratory, M. E. (17)		4	2
Shopwork, M. E. (14)		4	2
Philosophy, Phil. (3)	4		4

Second Semester.

Technical Literature, M. E. (27)	1		1
Power Plant Design, M. E. (8)	1	2	2

	Hours Attendance Rec.	Lab.	Credits.
Industrial Engineering, M. E. (24)	3		3
Hydraulic Motors, M. E. (22)	2		2
Contracts and Specifications, C. E. (31)	2		2
Political Economy, Pol. Econ. (1)	1		1
Thesis, M. E. Thesis			4
Philosophy, Phil. (4)	4		4
Business Law, Law (1)	1		1
Elective			2

OUTLINE OF COURSES.

ARCHITECTURE.

(1) Descriptive Geometry.

Two Credits. **Four Hours Drawing. First Semester.**

Problems in point, line, plane, curved surfaces and double curved surfaces of revolution. Intersection of planes and solids. Development of solids. Plane surface solids. Intersection of solids. Perspective. Shades and shadows. Isometric projections. Applications. Prerequisite, M. E. (2).

(2) Design.

Two Credits. **Two Hours Drawing. First Semester.**

The student is taught to draw with neatness and precision the various Orders. Free scope is given him to bring into play his designing ability. This course is a

preparation for general architectural composition and aims to bring out and direct along proper channels whatever ability in designing the student may have. At first simple problems are given but as the student's ability increases he is given more difficult problems.

(3) Design.

Two Credits. Four Hours Drawing.
Second Semester.

Continuation of (2). Prerequisite, Arch. (2).

(4) Design.

Six Credits. Eight Hours Drawing.
First Semester.

Continuation of (3). Prerequisite, Arch. (3).

(5) Design.

Six Credits. Eight Hours Drawing.
Second Semester.

Continuation of (4). Prerequisite Arch. (4).

(6) Design.

Four Credits. Eight Hours Drawing.
First Semester.

Continuation of (5). Prerequisite, Arch. (5).

(7) Freehand Drawing.

Two Credits. Four Hours Drawing.
Second Semester.

Drawings are made from casts and afterwards from life. In all drawings precision and neatness in free-hand work is demanded.

(8) History of Architecture.

Two Credits. Two Hours.
First Semester.

Fully illustrated lectures and recitations are given on the Architectural history of different periods. The outlines of general history are studied in conjunction with the architecture of the times in order to enable the student to appreciate the relation of the people and their architecture. A careful study is made of the various examples of the great architectural styles of these times and also of painting and sculpture.

(9) History of Architecture.

Two Credits. Two Hours.
Second Semester.

Continuation of (8). Prerequisite, Arch (8).

(10) Construction.

Two Credits. Two Hours.
First Semester.

A course intended to give the student the fundamental notions. Foundations are studied and their adaptability to various soils. Manufacture of lime and cement; bricks and their manufacture; stone quarrying and dressing.

(11) Construction.

Two Credits. Two Hours.
Second Semester.

After the course in general construction, constructions in frame of wood, stone and brick are carefully studied.

(12) Sanitation.

Two Credits. **Two Hours.**
First Semester.

The draining and sewage of buildings, traps and systems of trapping, plumbing, fixtures, sewage removal and disposal, improved methods of house drainage and sanitary plumbing. Tests.

(13) Fireproofing.

Two Credits. **Two Hours.**
Second Semester.

A study of the different varieties of fire-proofing material and the methods of fire-proof building.

(14) Interior Decoration.

Two Credits. **Two Hours.**
First Semester.

Students are taught the designing of fire-places, stairways, halls, ceilings, wainscoting and the like. Also such ornamental designs for interior or exterior work as will bring into practice what he has learned of the various styles of architecture and their combinations. Plans are made of these in various scales.

CHEMISTRY.

(1) General and Inorganic Chemistry.

Three Hours Lecture, Four Hours Laboratory.
Five Credits. **First Semester.**

Discussion of Fundamental Laws, Mathematics of Chemistry. Ordinary elements studied from the standpoint of the Periodic Law. Practical demonstration

of Laws and Theories. McPherson & Henderson College Chemistry.

(2) General and Inorganic Chemistry.

Three Hours Lecture, Four Hours Laboratory.
Five Credits. **Second Semester.**

Ordinary and rarer elements from the standpoint of the Periodic Law. Metallurgy, with particular adaptation to the needs of Engineering students. Practical demonstration of principles discussed. Manufacture of Iron, Steel, Cement, Gas, Lubricants, Distillates, Pigments and Alloys. Prerequisite Chem. (1). McPherson & Henderson's College Inorganic Chemistry.

CIVIL ENGINEERING.

(1) Surveying.

One Hour Lecture, Two Hours Laboratory.
Two Credits. **First Semester.**

Theory, construction, use and adjustments of tape, compass, level and transit. Land and city surveying. Plotting, field work and computation of areas. Division of land. Simple leveling. Complete maps. Practical field work covering all matter taught in class work. The object is to thoroughly familiarize the student with the instruments and with field conditions. Field notes. Field maps. Topographical sketching without instruments. Prerequisite Eng. Math. (2). Johnson-Smith's Theory and Practice of Surveying.

(2) Surveying.

One Hour Lecture, Two Hours Laboratory.
Two Credits. Second Semester.

Continuation of (1). Prerequisite C. E. (1). Johnson-Smith's Theory and Practice of Surveying.

(3) Field Engineering.

One Hour Lecture, Four Hours Laboratory.
Three Credits. First Semester.

Leveling, contour lines, hachures, cross-section work. Use of plane table. Maps of work. Stadia. Transit stadia. City, mine, hydrographic and topographic surveying. Engineering office work. Plotting profiles and cross-sections. Calculation of areas. Computation of volumes of earth work and masonry. Draughting field notes. Excavation methods in different materials. Estimate of cost. Overhaul. Application to canals, trenches, embankments, dredging, etc. Practical surveying in the field under all the heads in the scope of the work in class. Notes. Calculations. Conditions made as nearly those of a corps in the field as possible, each student being required to fill every position in turn. Johnson-Smith's Theory and Practice of Surveying.

(4) Field Engineering.

One Hour Lecture, Four Hours Laboratory.
Three Credits. Second Semester.

Continuation of (3). Prerequisite C. E. (3). Johnson-Smith's Theory and Practice of Surveying.

(5) Engineering in Field.

Six Hours Laboratory.
First Semester.

Reconnaissance. Location, preliminary survey and grade stakes for highways, canals and railways. Plots

and calculations from notes. Theory of railway curves; simple, compound and taper curves. Locating sidetracks, switches, yards. Cross-sectioning. Triangulation. The work is made as nearly practical as possible and covers the theories and principles taught in class work. Prerequisite C. E. (4). Johnson-Smith's Theory and Practice of Surveying, Pickels and Wiley's Railway Surveying, Allen's Railroad Curves and Earthwork.

(6) Engineering in Field.

Four Hours Laboratory.
First Semester.

Continuation of (5). Prerequisite C. E. (5). Text as in (5).

(7) Technical Mechanics.

Three Credits. Three Hours.
First Semester.

General theories and principles concerning matter, inertia, space and time, motion, velocity and acceleration. Momentum. Force. Measures. Comparison and representation of force. Statics: Composition and resolution of concurring forces. Conditions of equilibrium. Composition and resolution of forces acting on a rigid body. Center of gravity. Friction. Virtual velocities. Machines. Funicular polygon. Attractions. Rectilinear and curvilinear motion. Kinetics: laws of motion. Motion under the action of a variable force; and in a resisting medium. Central forces. Constrained motion. Impact. Work and energy. Moments of inertia. Rotary motion. Motion of a system of rigid bodies in space.

Effort is made throughout the course to direct the attention of the student to practical application of mathematical deductions. Prerequisites Eng. Math. (3) and must be taking Physics (1). Hancock's Technical Mechanics.

(8) Technical Mechanics.

Three Credits. **Three Hours.**
Second Semester.

Continuation of (7). Prerequisite C. E. (7). Text as in (7).

(9) Mechanics of Materials.

Three Credits. **Three Hours.**
First Semester.

Resistance and elasticity of materials. Pipes, cylinders and riveted joints. Simple and cantilever beams. Restrained and continuous beams. Columns, shafts and girders and designing same. Torsion in shafts. Combined stresses. Strength and resilience of materials. Tension and compression. Flexure of beams. Shear and torsion. Apparent and true stresses. Plates, spheres and columns. Analytical and graphical methods used in the solution of problems. Prerequisites Eng. Math. (5) and C. E. (8). Merriman's Mechanics of Materials.

(10) Materials Testing Laboratory.

One Credit. **Two Hours Laboratory.**
First Semester.

Tests of iron, steel, wood and concrete in tension, compression, shear, bending and torsion. Rattler

tests on brick, and standard tests on road materials.

Prerequisite—must be taking C. E. (9). Text as in (9).

(11) Materials Testing Laboratory.

Two Credits. **Four Hours Laboratory. First Semester.**

Same as C. E. (10) only more complete. Especially for students in Architectural Engineering, Electrical Engineering and Mechanical Engineering. Prerequisite—must be taking C. E. (9). Text as in (9).

(12) Drawing.

Two Credits. **Four Hours Drawing. First Semester.**

Shading by lines and colors. Topographical drawing and lettering. Conventional signs, etc. Maps of work done in field. Completed maps in pencil, pen and colors. Blue prints. Tracing structural details. Prerequisite M. E. (1). Daniel's Topographical Drawing.

(13) Drawing.

Two Credits. **Four Hours Drawing. Second Semester.**

Continuation of (12). Prerequisite C. E. (12). Text as in (12).

(14) Structural Design.

One Credit. **Two Hours Drawing. First Semester.**

Mechanical drawing. Design and working drawing of machinery. Design and drawing of dams in

earth, stone, wood, concrete and reinforced concrete. Piers, retaining walls and abutments in different materials. Design and drawings of concrete and reinforced concrete arches, culverts and bridges. Trestles and viaducts. Simple bridges. Problems under certain conditions are given students from which the design is to be evolved. Drawings giving in detail the structure of the design are required.

Prerequisite—must be taking C. E. (10). Baker's A Treatise on Masonry Construction.

(15) Structural Design.

Two Credits. Four Hours Drawing.
Second Semester.

Continuation of (14). Prerequisite C. E. (14). Baker, and Current Publications of New Structures.

(16) Design.

Two Credits. Four Hours Drawing.
First Semester.

Analysis, design, estimate and drawings for a concrete or reinforced concrete dam, retaining wall, culvert or abutment. Same for a reinforced concrete bridge, either of solid arch, rib arch, girder or slab construction. Analysis, design and drawings for a trussed bent or tower in wood or steel. Analysis, design and drawings for a steel truss highway or railway bridge. In connection with this course, the student will be kept in touch with the latest methods and details of construction. Buel and Hills' Reinforced Concrete; Baker's Treatise on Masonry Construction; Taylor and Thompson's Concrete Plain

and Reinforced; Merriman's Roofs, Bridges and Other Structures; Current Publications.

Prerequisite C. E. (15).

(17) Thesis.

Three Credits. Six Hours.
Second Semester.

Original investigation of some Engineering problem.

(18) Graphics.

Two Hours Lecture, Two Hours Laboratory.
Three Credits. First Semester.

Principles and methods. Application to roof trusses under dead, snow and wind loads. Complete stresses for triangular and crescent trusses. Unsymmetrical loads and trusses. Bridge trusses. Stresses due to dead, snow, wind, initial tension and live loads. Bowstring trusses. Stress loads. Locomotive wheel loads. Plate girders. Shears. Moments. Trusses with broken chords. Miscellaneous trusses. Elastic deformation of trusses. Application to other engineering structures. Merriman and Jacoby's Graphic Statics.

(19) Graphics.

Two Hours Lecture, Two Hours Laboratory.
Three Credits. Second Semester.

Continuation of (18). Prerequisite C. E. (18). Text as in (18).

(20) Masonry.

Five Credits. Five Hours.
First Semester.

Study of materials, stone, brick, terra-cotta, limes, cements, sand, gravel and broken stone. Tests for

each, especial attention being paid to limes and cements. Proportions and use of lime and cement mortars. Plain concrete; materials, proportions, forms for, making and placing, water-proofing, strength, weight and cost. Reinforced: beams, columns and slabs; reinforcement of each. Details of construction, including forms, placing reinforcement and concrete, removal of forms, expansion and contraction. Separately moulded members. Concrete building blocks and artificial stone. Stone cutting. Stone masonry. Classification of stone masonry. General rules for laying. Concrete rubble. Cyclopean concrete. Strength. Brick masonry. Strength. Construction. Waterproofing. Ordinary foundations. Bed of foundation. Designing footings. Preparing bed under different conditions. Pile foundations. Wood, concrete, reinforced concrete and steel piles. Pile driving. Bearing power. Arrangement of foundation. Foundation under water. Coffer-dam, crib, and open-caisson process. Dredging through wells. Pneumatic process as used in buildings, rivers and subways. Freezing process. Masonry dams. Stability of gravity dams. Outlines of the design. Concrete and reinforced concrete dams. Liquid pressures. Causes of failure. Construction details of retaining walls. Theory of stability. Bridge abutments and piers. Culverts. Voussoir Arch. Stability of arches. Theory of arches and methods of failure. Elastic arch. Plain concrete fixed-end arches. Reinforced concrete hingeless arch. Hinged arch. Laboratory work in tests. Lectures giving further data, especially in reference to reinforced concrete and steel-con-

crete construction and reservoir dams. Baker's Treatise on Masonry Construction.

(21) Hydraulics.

Three Hours Lecture, Two Hours Laboratory.
Four Credits. Second Semester.

Fundamental data. Hydrostatics. Theoretical hydraulics. Instruments and observations, especially meters and pressure gauges. Flow through orifices. Flow over weirs. Flow through tubes and pipes. Flow in conduits. Flow in rivers. Water supply and water power. Dynamic pressure of water. Water wheels. Overshot, breast, undershot, vertical impulse, horizontal impulse and downward flow impulse wheels. Special forms of wheels. Turbines. Classification. Theory and design of turbines. Downward-flow and impulse turbines. Special devices. Naval hydro-mechanics. Pumps and pumping. Force and centrifugal pumps. Pumping engines. Other kinds of pumps. Pumping through pipes, and through hose. Hydraulic motors. Hydraulic-electro analogies. Stress is laid upon the effect of hydraulic laws upon engineering construction in or under water, especially in problems involving the impounding of water, or oil. Merriman's Treatise on Hydraulics.

(22) Roof, Bridge and General Trusses.

Four Credits. Four Hours.
First Semester.

Analysis and deduction of stresses in members of roof trusses under different loads. Different types of loads. Final stresses in bridge trusses. Types of highway and railway bridges under dead loads. Live

American bridge trusses. Bridge bracing, members and floors. Deflection and least work. Cantilever trusses and cranes. Swing bridges. Hinged trusses. Viaducts. Principles of economic design. Details and design of pin truss bridge. Highway bridges. Railroad riveted bridges. Merriman and Jacoby's Roofs and Bridges.

(23) Roof, Bridge and General Trusses.

Five Credits. **Five Hours.**
Second Semester.

Continuation of (22). Prerequisite C. E. (22). Text as in (22).

(24) Roads and Pavements.

Two Credits. **Two Hours.**
First Semester.

Different types of highways. Economic location of highways. Traction resistance. Gradients. Foundations. Preparing foundations. Drainage. Standard cross-sections. Natural, broken stone and other artificial roads. Materials and their adaptability to classes of traffic. Road coverings. Asphalts. Asphaltines and patented road coverings. Oils. Oiled roads. Dust prevention. Maintenance and repairs. Pavements. Paving materials. City streets. Width and cross-section, crown, gutters, curbs, footwalks and crossings. Street intersection and grades. Standard city streets and street railway construction. Repairs. Lectures on improvement and changes in highway construction. Baker's Roads and Pavements; Bulletins from Office of Public Roads, U. S. Dept. of Agriculture.

(25) Sewers and Sanitation.

Two Credits. **Two Hours.**
First Semester.

Principles of design. Types. Systems and general use. Standard sewer construction in different forms and materials. Standard and power systems. Sanitary problems involved. Methods of disposition of sewage. Garbage removal and disposition. Cost estimates. Design. Lectures on problems involved. Ogden's Sewer Design, Fuller's Sewage Disposal, Elsner-Spilner-Allen's Sewage-Sludge.

(26) Geodesy and Astronomy.

One Credit. **Two Hours Laboratory.**
First Semester.

Class, field and observatory work. Methods of field work to obtain accurate results. Construction, use and correction of errors in instruments. Observatory determination of latitude, longitude, azimuth and time. Field work in determining parallels and meridians. Latitude and azimuth. Transit, altazimuth and sextant and their uses. Solar transit. Triangulations and adjustments. Compass variations. Especial attention directed to use and correction of engineering instruments and their adaptability to astronomical uses. Crandall's Text-Book on Geodesy and Least Squares.

(27) Concrete and Reinforced Concrete.

Two Hours Lecture, Two Hours Laboratory.
Three Credits. **First Semester.**

Lecture course supplemented by practical problems. Economic use of properties of concrete, reinforced

concrete and steel concrete. Beams and theories of flexure. Columns. Retaining walls, drains, tanks, conduits and chimneys. Tests and designs of arches. Materials and method of construction in foundations, buildings, bridges and conduit work. Facing and finishing. Forms. Falsework. Reinforcement; apportioning in girders, beams, columns and slabs. Systems of reinforcement. Placing reinforcement. Waterproofing. The object is to make the student familiar with the details of this modern construction. Buell & Hill's Reinforced Concrete, Baker's Treatise on Masonry Construction, Taylor & Thompson's Concrete, Plain and Reinforced.

(28) Tunneling.

Two Credits. **Two Hours.**
First Semester.

Classification of tunnels. Locating tunnels. Economic location. Different methods employed in tunnels under various soil conditions. Excavating. Removal of excavations. Blasting. Powders. Drills and machinery used. Economic distribution of forces. Heading and bench. Linings in wood, brick, concrete and reinforced concrete. Drainage. Ventilation. Rapid transit system. City subway work and methods. Stauffer: Modern Tunnel Practice.

(29) Irrigation.

Two Credits. **Two Hours.**
Second Semester.

Irrigation in general. Value, cost and returns. Drainage areas. Estimation of rainfall and discharge from drainage areas. Water units and duty. Streams,

flow and discharge. Measuring devices. Canals and ditches; construction, alignment, slope and cross-section. Distribution. Application of water in irrigation. Storage work. Water supply and losses. Geological conditions affecting reservoir sites. Earth and masonry dams. Details of headworks, diversion, weirs, waste ways, sluices and regulators. Pumping machinery. Maintenance. Water rights. Irrigation laws. Newell and Murphy's Principles of Irrigation Engineering.

(30) Railway Construction.

Three Credits. **Three Hours.**
Second Semester.

Much of the course is also adapted to the construction of canals, highways, levees, etc. Reconnaissance. Location. Alignment, grade and distances. Parties. Staking out work. Grading. Organization of grading parties. Methods of grading. Machines, etc. Output of men, animals and machines. Volumes. Cut and fill. Overhaul. Finishing. Revetments. Drainage areas and waterways. Culverts, size and character. Tracklaying. Tracklaying machines. Surfacing. Ballast. Single and double track roads. Side tracks, switches, crossings and yards. Round houses. Shortening lines. Operating expenses. Maintenance. General land extra gangs. Camp hygiene. Right of way. This course is largely lecture work, using standard text-books and writings. Tratman's Railway Track and Track Work.

(31) Estimates and Specifications.

Two Credits. **Two Hours.**
Second Semester.

Principally a lecture course, but supplemented by practical problems for which estimates and specifications must be submitted. Position of engineer in construction. Duties. Estimates. Corrections. Latitude allowed. Contracts. General kinds. Special. Specifications. Definiteness. Lectures on law of contracts. Kirby's Elements of Specification Writing.

(32) Surveying.

One Credit. **Two Hours Laboratory.**
Second Semester.

Use and adjustment of tape, level and transit. For Electrical and Mechanical Engineers. Johnson-Smith's Text.

Announcement.

Beginning with the summer of 1917 the University Summer School of Field Work in Civil Engineering will be established in camp at Loyola, in the foothills of the Santa Cruz Mountains. This camp is so situated as to offer the student exceptionally ideal areas for field work in plain, foothill and mountain. The field work will be conducted by experienced field engineers, who will, in addition to the full technical course, give thorough instruction in practical camping, camp methods and camp hygiene. The course will be four weeks in length and will be obligatory

upon both Junior and Senior Classes in Civil Engineering; each class being under separate instructors and doing individual work.

The course will embrace complete topographical surveys, with different instruments, leveling, contouring, railway reconnaissance, preliminary and location survey, cross-sectioning, railway curves, highway surveys and location, maps and profiles, earthwork computation, estimates, watershed computation, irrigation problems and canal surveys, survey and estimate for dams, determination of latitude and longitude, triangulation, base line, geodetic survey of large extent of country, etc.

A full outline of each course and corresponding instructors, date of opening, expenses, etc., will be published in the spring of 1917.

ELECTRICAL ENGINEERING.

(1) Electrical Machinery.

Two Credits. **Two Hours.**
First Semester.

Magnetic field. Magneto-motive force. Hysteresis. Elementary dynamo. The magnetic circuit. Armature core. Commutator. Brush shifting. Sparking at brushes and remedies. Different types of generators. Methods of transmitting, distributing and controlling direct current. Direct current series and parallel systems. Feeders and mains. High tension D. C. systems. Timbie's Elements of Electricity.

(2) Alternating Current Machinery.

Three Credits. Three Hours.
Second Semester.

Self and mutual influence. Capacity. Impedance. Phase angle and power factor. Series of repulsion types. Synchronous motors. Induction motors, single and polyphase. Methods of starting. Speed control. Electric drive for cranes, elevators, presses, pumps, fans, mill-work, etc. Prerequisites Physics (3) and E. E. (1). Christie's Electrical Engineering.

(3) Alternating Currents.

Three Hours Drawing.
Three Credits. First Semester.

Electric power systems. Translating, controlling and transmitting equipment. Constant potential and constant current transformers. Efficiency, regulation and protection. Polyphase systems of generation. Two phase and three phase and conversion from one system to another. Calculation of alternating current transmission lines. Regulation of voltage. Power factor of systems. Switch-boards. Apparatus used on switch-boards. Location. Types. Pole lines. Cable and conduit systems. Prerequisites E. E. (2). Christie's Electrical Engineering.

(4) Telephony.

One Credit. One Hour.
First Semester.

The magneto-telephone. The microphone. Carbon transmitters. Induction coils. Call methods. Series and parallel circuits. Subscribers equipment. Line disturbances. Common battery systems. Ex-

change equipment. Party lines. Automatic systems. Combined telegraphy and telephony. Wireless telegraphy. Generation of electrical waves. Transmitting and receiving apparatus. Prerequisites Physics (2) and E. E. (1). Electrical Engineer's Handbook.

(5) Electric Railways.

Two Credits. Two Hours.
Second Semester.

Train resistance due to tracks and bearing surfaces, curves, grades and air. Acceleration and braking. Speed-time curves. Motors for railway work. Controllers. Distribution systems. Track construction. Bonding and electrolysis. Trucks, wheels and car bodies. Conduits, storage battery and third rail systems. Electric locomotives. Multiple unit control. Testing railway equipment. Financial considerations.

(6) Design of Direct Current Machinery.

Two Credits. Four Hours Drawing.
First Semester.

Electrical and mechanical theory applied to the design of D. C. machinery. Switches, heaters, controllers, etc. Complete calculations and working drawings for a dynamo or motor, to fulfill given specifications. Prerequisite E. E. (1). Gray's Electric Machinery Design.

(7) Power Plant Design.

Two Hours Lecture, Four Hours Drawing.
Four Credits. Second Semester.

Design of a complete plant to furnish light for a city of a given size. Consideration of the elements:

illumination, charges, operating expenses, income, organization and administration, reports, specifications, contracts and statistics. Prerequisites E. E. (3) and (6). Weingreen's Electric Power Plant Engineering.

(8) Electrical Design.

Two Credits. **Four Hours Drawing.**
Second Semester.

Design of alternators, transformers, induction motors and other alternating current apparatus. Thorough investigation and complete design of some unit assigned. Gray's Electric Machinery Design.

(9) Electrical Engineering Laboratory.

Two Credits. **Four Hours Laboratory.**
First Semester.

Determination of the resistance of electric circuits. Relation between speed, field strength and voltage. Operation of shunt series and compound-wound generators. Distribution of potential around commutator. Heat runs to determine load capacity. Stray power. Starting boxes. Counter electro-motive force. Shunt, series compound and differentially wound motors. Operation of shunt and compound wound generators in parallel. Distribution of load. Control of series circuits. Regulation of arc lamps. Constant potential and constant current generators. Prerequisite—must be taking E. E. (1): Wilson's Dynamo Laboratory Outlines and References.

(10) Electrical Engineering Laboratory.
Two Credits. **Four Hours Laboratory.**
Second Semester.

Calibration of ammeters and voltmeters. Calibrations and adjustment of A. C. and D. C. watt-hour meters. Determination of resistances. Measurement of inductance and capacity. Permeability of samples of iron and steel. Determination of hysteresis. Storage Batteries. Testing. Candle-power of lamps from standard candle. Cable testing. Insulation resistance. Practice in operation of A. C. motors, generators and other apparatus. Prerequisite E. E. (9).

(11) Electrical Engineering Laboratory.
Two Credits. **Four Hours Laboratory.**
First Semester.

Alternating current circuits. Inductance, capacity, impedance, phase, relation, true and apparent watts and power factor. Alternators. Magnetization curves. Losses and synchronous impedance. Synchronous motors. Methods of Synchronizing. Methods of starting rotary converters. Compounding. Calculation of efficiency. Alternators in parallel. Transformers. Regulation. Heating and efficiency. Use as induction regulators and phase changers. Wave shapes by instantaneous contact and by the oscillograph. Resonance. Methods of starting induction motors. Efficiency by brake tests. Operation of induction generator. Reports of complete tests on plants.

(12) Electrical Engineering Laboratory.
Two Credits. **Four Hours Laboratory.**
Second Semester.

Continuation of (11). Prerequisite E. E. (11).

(13) Technical Literature.

One Credit. **One Hour.**
Second Semester.

Assigned readings and reports from current technical literature.

(14) Electricity.

Two Hours Lecture, Two Hours Laboratory.
Three Credits. **Second Semester.**

A short course similar to E. E. (1) and E. E. (9) for Civil Engineering Students. Timbie's Elements of Electricity.

ENGINEERING MATHEMATICS.

(1) Algebra.

Three Credits. **Three Hours.**
First Semester.

Complete Algebra to include quadratic equations, then more particularly: ratio and proportion, progressions, imaginary and complex numbers, indeterminate equations, binomial theorem, variables and limits, inequalities, interpretation of results, logarithms, permutations and combinations, indetermined coefficients, determinants and graphic algebra. Brenke's Advanced Algebra and Trigonometry.

(2) Trigonometry.

Two Credits. **Two Hours.**
First Semester.

Development of general formulae. Functions and their relations. Logarithms and their uses. Proper-

ties of triangles. Application of principles to practical problems in right and oblique triangles. Navigation in plane trigonometrical problems. Spherical trigonometry. Application to problems in astronomy and spherical mensuration. Brenke's Advanced Algebra and Trigonometry.

(3) Analytic Geometry.

Five Credits. **Five Hours.**
Second Semester.

Loci. Lines. Circle. Different systems of coordinates. Conic sections. Supplementary propositions. Loci of second order. Plane curves of higher order. Solid analytical geometry, especially of surfaces of revolution. General equations. Prerequisites Eng. Math. (1) and (2). Riggs' Analytic Geometry.

(4) Calculus.

Five Credits. **Five Hours.**
First Semester.

Fundamental formulae and principles for differential and integral calculus. Maxima and minima. Curvature. Surfaces. Volumes. Intermediate forms. Envelopes. Series. Expansion. Forms of integration. Practical application. Prerequisite Eng. Math. (3). Townsend and Goodenough's Essentials of Calculus.

(5) Calculus.

Five Credits. **Five Hours.**
Second Semester.

Continuation of (4). Prerequisite Eng. Math. (4).

(6) Differential Equations.

Two Credits. **Five Hours.**
Second Semester.

Analysis and deductions of formulae and equations used in physics, mechanics and engineering problems. Applications of formulae and equations given in engineering handbooks to problems. Practical problems and lectures. Prerequisite Eng. Math. (5).

(7) Method of Least Squares.

Two Credits. **Five Hours.**
Second Semester.

Study of the principles and methods. Applications to solution of physical, astronomical, engineering and other problems. The student will be made familiar with this higher and more accurate method of solution of problems in his profession, especially triangulations. Merriman's Method of Least Squares.

ENGLISH.

(1) Composition and Rhetoric.

Four Credits. **Four Hours.**
First Semester.

Lectures and recitations. The invention, arrangement, and presentation of material. The different species of historical, philosophical, scientific, critical, etc., masterpieces. Coppens' Rhetoric.

(2) Composition and Rhetoric.

Four Credits. **Four Hours.**
Second Semester.

Continuation of (1). Prerequisite Eng. (1).

(3) Rhetoric and Literature.

Three Credits. **Three Hours.**
First Semester.

A course in English Rhetoric and Literature. Students who show any deficiency in English are required to take moreover the course in Special Composition. One hour a week is devoted to the study of Engineering Literature. Herrick and Damon's New Composition and Rhetoric.

(4) Rhetoric and Literature.

Three Credits. **Three Hours.**

Continuation of (3). Prerequisite Eng. (3).

GEOLOGY.

(1) Geology.

Two Credits. **Two Hours.**
First Semester.

Brief Course in Mineralogy with access to a large and historical Geology. Particular attention is paid to structural Geology and the influences of Instructive and Engineering conditions. The student is made familiar with different stones by illustrating each recitation with specimens of the particular rocks treated, as well as their adaptability in construction, method of occurrence, etc. Ries and Watson's Engineering Geology.

(2) Mineralogy.

Three Credits. **Three Hours.**
Second Semester.

Brief Course in Mineralogy with access to a large

collection of specimens. Determination of unlabeled specimens. Crystallography. Blowpipe analysis. Includes a short course in Metallurgy. Iron ores and production of iron and steel. Percentage and effects of sulphur, silicon, manganese and carbon in iron and steel. Coals, Coke, Carbons, and ash. Prerequisite Geology (1). Text as in (1).

LAW.

(1) Business Law.

One Credit. One Hour.
Second Semester.

A brief course in Contracts, Sales, Negotiable Instruments, Real Estate, Partnership, Corporations and such other subjects as the professor may deem necessary or advisable.

MECHANICAL ENGINEERING.

(1) Mechanical Drawing.

Three Credits. Six Hours Drawing
First Semester.

Freehand lettering. Use of instruments. Plane problems. Freehand sketching. Orthographic, isometric and cabinet projections. Tracing and blue printing. French's Engineering Drawing.

(2) Descriptive Geometry.

Three Credits. One Hour Lecture, Four Hours Drawing.
Second Semester.

Orthographic projection of points, lines, planes, warped surfaces, etc., in the four angles of projection. Intersections. Tangents to curves and surfaces. Developments. Practical problems in stereotomy, surveying, architecture, belting layouts, etc. Prerequisites M. E. (1). Smith's Practical Descriptive Geometry.

(3) Kinematics.

Two Credits. Two Hours.
First Semester.

Motion, velocity and acceleration of machine parts. Rolling cylinders and cones. Lobed wheels. Belts. Levers, cams, Linkwork. Gearing. Parallel and straight line motion. Intermittent linkwork. Aggregate combinations. Prerequisite M. E. (1). Smith & Marx' Machine Design and Mechanism of the Steam Engine by James & Dole.

(4) Machine Drawing.

One Hour Lecture, Four Hours Drawing.
Three Credits. Second Semester.

Language of Mechanical Drawing. Conventional method of representing bolts, screws and other standards. Piping. Designing and detailing simple parts to take tension, compression and shear. Study of different methods of drawing and dimensioning found on commercial working drawings. Accuracy, completeness and speed are required. Prerequisite M. E. (3). French's Engineering Drawing.

(5) Machine Design.

Two Credits. **Four Hours Drawing.**
First Semester.

Selection of materials for machine parts. Proper working stress for different materials under dead, repeated and reversed loads. Determination of nature and distribution of stresses in each element of a machine. Friction. Design of such elements as crank shafts, machine frames, connecting rods, etc., when subject to tension, compression, shear, torsion, bending or any combination of these. Figuring weight and cost of manufacture. The kinematic layout of a machine for functional operation. The evolution of a design from preliminary sketch to complete working and assembly drawings, involving a study of strength, adaptability, symmetry, ease of operation, depreciation and cost of manufacture. In all this work the note-book is as important as the drawings. Prerequisite M. E. (4). Smith & Marx' Machine Design.

(6) Machine Design.

Three Credits. **Six Hours Drawing.**
Second Semester.

Continuation of (5). Prerequisite M. E. (5).

(7) Machine Design.

Two Credits. **Four Hours Drawing.**
First Semester.

Continuation of (6). Prerequisite M. E. (6).

(8) Power Plant Design.

Three Credits. **Two Hours.**
Second Semester.

Sites. Comparison of high-speed engines. Corliss

engines, steam turbines and gas engines. Cost and adaptability of different types of steam boilers. Condensers. Economizers. Superheaters. Pumps. Stokers. Piping. Complete layout of a plant with specifications and advertisement for bids. Koester's Steam-Electric Power Plants.

(9) Review of Engineering Industries.

One Credit. **One Hour.**
First Semester.

Lectures and assigned reading on Engineering studies and work. This course is designed to teach the student how to study and to enable him to make a rational choice of a course of study.

(9a) Review of Engineering Industries.

One Credit. **One Hour.**
Second Semester.

Continuation of (9).

(10) Shopwork.

Two Credits. **Four Hours Laboratory.**
First Semester.

Use and care of saws, planes, squares, etc. Layout of simple work from blue prints. Lathe tools and exercises in turning.

(11) Shopwork.

Three Credits. **Six Hours Laboratory.**
Second Semester.

Patternmaking and foundry work. Use of shrink rule. Construction of typical solid, split and piece patterns and core boxes. Layouts from working

drawings. Bench moulding. Dry sand, green sand and loam moulds. Swept work. Core making. Shop visits. Prerequisite M. E. (10).

(12) Shopwork.

Two Credits. Four Hours Laboratory.
First Semester.

Management of forge fire. Shaping. Drawing. Upsetting. Swaging. Welding. Tempering. Die forging. Working different grades of iron and steel.

(13) Shopwork.

Two Credits. Four Hours Laboratory.
Second Semester.

Cold-chisel, file and scraper. Work on the lathe, planer, drill, shaper, milling machine and grinder. Assembling, erecting and rigging.

(14) Shopwork.

Two Credits. Four Hours Laboratory.
First Semester.

Continuation of (13). Prerequisite M. E. (13).

(15) Mechanical Engineering Laboratory.

Two Credits. Four Hours Laboratory.
First Semester.

Method of investigation. Classification of errors. Accuracy of numerical calculations. Autographic diagrams. Calibration of pressure gauges, thermometers, pyrometers, indicator springs, tachometers, planimeters, weirs, nozzles, orifices, pitot tubes, Venturi meters and dynamometers. Testing of lubricants. Density, viscosity, gumming, fire-test and cold test.

Measurement of power by the prony brake, Alden brake, traction dynamometers and transmission dynamometers. Belt testing. Measurement of flow of liquids and gases by means of meters, nozzles, pitot tubes, etc. Moisture in steam by barrel, Hoadley, Barrus, throttling, separating and chemical calorimeters. Heating value of coals determined by the bomb calorimeter. Heating value of gas by Junker's calorimeter. Flue gas analysis with Orsat's apparatus. Complete tests of steam engines, boilers, gas engines, injectors, pumps and entire plants. Standard reports. Carpenter and Diedrick's Experimental Engineering.

(16) Mechanical Engineering Laboratory.

One Credit. Two Hours Laboratory. Second Semester.

Continuation of (15). Prerequisite (15).

(17) Mechanical Engineering Laboratory.

Two Credits. Four Hours Laboratory. First Semester.

Continuation of (16). Prerequisite M. E. (16).

(18) Boilers.

Two Credits. Two Hours. First Semester.

Heat; conduction, convection and radiation. Heat of evaporation. Combustion. Smoke. Quantity of air required. Methods of firing. Classification of coals. Efficiency of combustion. Boiler horse-power. Types of boilers. Furnaces. Stokers. Draft. Boiler Scale. Water purification. Explosions. Testing. Care of Boilers. Prerequisite Physics (1). Gebhardt's Power Plant Engineering.

(19) Steam and Gas Machinery.

Three Credits. **Three Hours.**
Second Semester.

Properties of steam. Slide-valve. Indicator. Simple and compound engines. High speed, Corliss and marine engines. Turbines. Steam pumps. Locomotives. Valve gears. Governors. Flywheels. Balancing. Steam engine performance. Operation of two and four cycle gas and oil Engines. Indicator analysis. Prerequisite M. E. (18). Gebhardt's Power Plant Engineering.

(20) Thermodynamics.

Four Credits. **Four Hours.**
First Semester.

Mechanical theory of heat. First and second laws of thermo-dynamics. Perfect gases. Saturated vapors. Superheated vapors. Hot air engine. Internal combustion engine cycles. Influence of engine cylinder walls. Friction of engines. Refrigerating machines. Injectors. Steam turbines. Prerequisite M. E. (19). Ennis' Applied Thermodynamics.

(21) Internal Combustion Engines and Automobiles.

Two Credits. **Two Hours.**
First Semester.

The theory and design of gas, gasoline and oil engines, gas producer practice; the combustion of gaseous fuels. Pre requisite M. E. (20). Streeter's Internal Combustion Engines.

(22) Hydraulic Motors.

Two Credits. **Two Hours.**
Second Semester.

Action of water on curved vanes. Forces developed and effect of impact. Work done. Centrifugal action. Reaction turbines. Vane form and arrangement. Axial, radial and mixed flow wheels. Losses due to friction, shock, leakage and residual velocity. Impulse turbines. Experiments with turbines of various types. Governors. Centrifugal pumps. Theory. Radial and curved vanes. Velocity of flow. Volute. Diffuser. Guide vanes in diffuser. Impeller passages. Balancing. Losses. Efficiency. Selection and arrangement of water-wheels. Governors and auxiliary apparatus. Relation between available water supply, possible output and perfection of development work. Draft tubes. Stop valves. Gates. Vacuum and pressure relief stand pipes. Analysis of typical installations. Water power costs.

Prerequisite C. E. (21). Daugherty's Hydraulic Motors.

(23) Industrial Engineering.

Two Credits. **Two Hours.**
First Semester.

The economic element in shop processes. Conditions for most economic production. Functional operation of machine tools. Limits of economic production. Machines for performing specific operations. Time study. Labor saving devices in the shop. Distribution of cost of machine production between different processes, power, labor and material. Fixed

charges. Layout of shops for most direct production. Layout of system of management and cost determining system. Prerequisite M. E. (13). Diemer's Factory Organization and Administration.

(24) Industrial Engineering.

Three Credits. Three Hours.
Second Semester.

Continuation of (23). Prerequisite M. E. (23). Galbreith's Time Study.

(25) Heating and Ventilation.

Two Credits. Two Hours.
First Semester.

Theory and design of the various systems for heating and ventilating buildings, including Hot Air, Hot Water, Steam and the plenum and vacuum systems, and central station heating. Hoffman's Handbook for Heating and Ventilating Engineers.

(26) Heating and Ventilation.

Two Credits. Two Hours.
Second Semester.

Continuation of (25). Prerequisite M. E. (25).

(27) Technical Literature.

One Credit. One Hour.
Second Semester.

Reading and reports from current Engineering literature.

MODERN LANGUAGES.

(1) French.

Four Credits. Four Hours.
First Semester.

In this course the student is carefully drilled in elementary grammar up to the irregular verbs, attention also being given to acquiring a vocabulary of the more common words.

(2) French.

Four Credits. Four Hours.
Second Semester.

A continuation of the preceding course. Special attention is given to the more important irregular verbs, the memorizing of words, and translation of French into English and vice versa.

(3) German.

Four Credits. Four Hours.
First Semester.

Elements of German grammar. Drill in pronunciation. Vocabulary.

(4) German.

Four Credits. Four Hours.
Second Semester.

A continuation of Course 3. Syntax. Oral and written exercises. Reading from the more simple German prose.

(5) Spanish.

Four Credits. Four Hours.
First Semester.

Elements of Spanish grammar. Drill in pronunciation. Vocabulary. Translations.

(6) Spanish.

Four Credits. Four Hours.
Second Semester.

Continuation of (5).

PHILOSOPHY.

(1) Logic.

Four Credits. Four Hours.
First Semester.

The reasoning faculties and processes. Laws of thought. Truth. Certitude. Doubt. False systems.

(2) Ontology. Psychology.

Five Credits. Five Hours
Second Semester.

Being, its origin, development, explanation. Life, its origin and kinds. Origin of Species. Darwinism. Huxley. Haeckel. The Soul, its origin and spirituality.

(3) Theodicy.

Four Credits. Four Hours.
First Semester.

God, His existence, nature and attributes. Creation. Providence. Miracles.

(4) Ethics.

Four Credits. **Four Hours.**
Second Semester.

Right and Wrong. Natural Law. Sanction of Law. False norms of Morality. Worship. Homicide. Suicide. Dueling. Society. Marriage. Divorce. Socialism. Theories of Government. Suffrage, Liberty of the Press. Church and State.

PHYSICS.

(1) Mechanics, Molecular Physics, Sound.

Three Hours Lecture, Four Hours Laboratory.
Five Credits. **First Semester.**

General principles of matter. General properties of Bodies. Equilibrium. Gravity. The balance. Laws of falling bodies. Pendulum. Properties peculiar to solids. Hydrostatics. Capillarity, endosmose, diffusion, absorption. Hydro-dynamics. The properties of gases. Barometers. Measurement of the elastic force of gases. Aerodynamics. Production, propagation and reflection of sound. Measurement of the number of vibrations. The physical theory of music. Prerequisite—must be taking Eng. Math. (4). Reed & Guthe's Physics.

(2) Light, Heat, Electricity.

Three Hours Lecture, Four Hours Laboratory.
Five Credits. **Second Semester.**

Transmission, velocity, intensity and reflection of light. Mirrors. Single refraction. Lenses. Disper-

sion and achromatism. Optical instruments. The eye. Sources of light. Phosphorescence. Double refraction. Interference and polarization. Properties of magnetism. Methods of magnetism. Laws of magnetic action. Terrestrial magnetism. Fundamental principles of frictional electricity. Quantitative laws of electric action. Distribution. Electro-static induction of influence. Electric machines. Condensation of electricity. Voltaic cell. Its modifications. Magnetic field due to current. Galvanometers. Ohm's law. Conversion of electric energy into heat. Thermo-electricity. Electro-dynamics. Electro-magnets. Magnetization of iron. Telegraphy. Electro-magnetic induction. Passage of electricity through gases. Magneto and dynamo electric machines. Diamagnetism. Connection between electricity and light. Physiological action of the current. Animal electricity. Prerequisite Phy. (1). Reed & Guthe's Physics.

(3) Electrical Measurements.

Two Credits. Two Hours.
First Semester.

Elementary electro-statics. Electrification by friction, conduction and induction. Magnetism. Determination of horizontal force and magnetic moment. Fundamental experiments in Voltaic electricity. The galvanoscope and the galvanometer. Determination of E. M. F. Wheatstone's bridge. Calibration of galvanoscope. Measurements of resistance. The high resistance differential astatic galvanometer. Measurement of galvonometer resistance. Thomson's method. Differential method. Use of slide meter bridge. Carey Foster's method. Measurement of

very low resistances. The method of comparison of potentials, projection of equal potentials and auxiliary conductors. Measurement of high resistance. The direct deflection method. Electrolyte resistance. Electrolytic resistance by alternating currents. The tangent galvanometer. Use of the standard galvanometer and the determination of E. M. F. Application of Joule's law. Use of potential galvanometer. Determination of the magnetic elements. Electro-magnetism and electro-magnetic induction. Action of linear current on magnet. Biot and Savart's law. Proof of electro-magnetic laws. Magnetic action of a solenoid. Laws of the electro-magnet. Induction experiments. Induction balance of Hughes. Damping. Comparison of resistance by magneto conductor. Use of earth inductor. Study of magnetic distribution. The condenser. Determination of the absolute capacity of a condenser. Electrometers. Prerequisite Phys. (2). Reed & Guthe's Physical Measurements.

POLITICAL ECONOMY.

(1) Political Economy.

One Credit. **One Hour.**
Second Semester.

Object. Production, distribution, circulation and consumption of wealth. Production of wealth. Earth and natural agents. Labor and industry. Capital. Distribution of wealth. Individual property. Share of laborers. Circulation of wealth. Exchange. Taxes. Applications. This course is designed to give the student a broader view of his standing as a professional man in the community.

THE ASTRONOMICAL, METEOROLOGICAL AND SEISMOLOGICAL OBSERVATORY

JEROME SIXTUS RICARD, S. J.,

Director.

TURIBIUS EDWARD BRACHO, S. J.,

Computing Assistant.

ALBERT JOSEPH NEWLIN, B. S., LL. B.

Weather Forecaster and Seismologist.

Student Assistants:

William Stewart Cannon

James Daniel Coyle, Jr.

James Robert Enright

Miles Aloysius Fitzgerald

Orvis Humphrey Speciale.

Institute of Law

INSTITUTE OF LAW

PURPOSES OF THE INSTITUTE OF LAW.

The purposes of the Institute of Law are:

To give a thorough training in the fundamental principles of English and American law, and the modifications thereof peculiar to the State of California;

To guide the student by actual practice in office work and court procedure to a proper application of the principles of law to concrete cases;

Finally, to imbue the student with the correct ethical principles that should govern the legal profession.

THE METHOD OF INSTRUCTION.

The method of instruction inevitably fixes the comparative value of the result. The student should solicitously seek the method which will best fit him for his practical work at the bar.

It is said that there are three systems now in vogue:

1. The Absolute Case System.
2. The Lecture System.
3. The Text Book System.

But a truer view perhaps is that there are but two systems:

1. A system by which the principles of the law are derived solely from the study and consideration of specific cases. This is the Absolute Case System.

2. A system by which the principles of the law are conveyed by means of treatises of eminent jurists or by

means of lectures based in part upon the best treatises and also upon original research and personal experience. This system does not exclude the use of cases. It employs them freely, but chiefly by way of illustration and to give the student practical aid in the intelligent handling of reports and the weighing of decisions.

The Case System was inaugurated by Harvard in 1871 and the same course is pursued also in the law schools of the following universities, namely: Wisconsin, New York, Northwestern, Illinois, Chicago, Fordham, Cornell, Minnesota, George Washington (D. C.), Iowa, Maine, Louisville, Nebraska, Missouri, Pennsylvania, California, Leland Stanford Jr., Hastings Law School and probably many others. In the Northwestern University we are told that each instructor employs the case system "according to his own judgment, conducting the class by lectures, discussions, recitations, written exercises, or in any way he deems best adapted to the subject."

Even Harvard, as appears from a recent circular of that university, does not assume that the student's sole source of legal knowledge is the case book or the professor's explanations thereof; but permits and doubtless expects him to illuminate the study of the case under consideration, by the reading of the best treatises on the subject.

The second or composite system seems to be growing rapidly in favor. It is used in the following universities and law schools: The National University, Michigan, Indiana, Georgia, Mercer, Kansas, Georgetown, Catholic University, The New York Law School, Tennessee, St. Louis, Chattanooga, Vanderbilt, Albany,

Loyola, Southern California, Cumberland, Notre Dame, Montana, Boston, St. Paul, Pittsburg, Colorado, Colorado College, Mississippi, Virginia, Ohio, Washington University in St. Louis, and doubtless many others. The Cincinnati Law School is claimed as a case school but its catalogue contains a schedule of lectures for the current school year covering every important topic of the law. The New York Law School has issued a most convincing brief against the exclusive case system. The Southern Law schools in general maintain a high standard of merit and excellence. They are practically unanimous in the conclusion that it is impossible for an exclusive case system to produce a well equipped lawyer. They strongly favor the use of the ablest treatises, and surely it is not without reason that they urge that the master works of our Kents and Minors and Bishops and Wigmores, and their illustrious fellows, representing a life-time of specially skilled labor in the critical consideration and comparison of tens of thousands of cases, should not go unutilized in the preparation of young men for the bar.

The strongest objections to the absolute case system as the sole source of legal equipment seem to be deducible from the arguments of its advocates. A student of botany would surely be unwise not to avail himself of the storehouse of facts ready at hand, crammed with the results of the life-long observations of men peculiarly fitted for the work. A student of chemistry would seem to be out of his mind if instead of acquainting himself with the results of probably a hundred times as many experiments as his brief course of a few years would permit him to make in a university, he

should attempt in that inadequate period to reconstruct for himself the grand proportions of the temple of chemical knowledge. "Ah, but he will have aid." Then if he is to have aid, he should have the best aid and the most aid within his reach. He should possess himself of all the garnered knowledge of the science, the product, it may be, of the labors of a host of gifted men. And every step in it will but verify and illustrate a small part of what he already knows.

The medical student cannot master the science of medicine or even of surgery by mere attendance upon hospitals and could certainly never get a license to practise by that course alone. More than that, if he had first filled his mind with the medical learning of the books, the hospital experience itself would have infinitely more value and significance to him. The ordinary student of history cannot go to the sources. Such work should be done thoroughly or not at all and for him life is too short for that. Even the professional historian must restrict his researches to a small part of the entire field. Is it not the same with the law student? If he is going to the sources merely to gain practice in dealing with decisions, a moderate amount of such work only should be done or it will seriously interfere with the main purpose of his legal course, namely; the acquisition of legal knowledge. If on the other hand that is to be his sole source of learning, then he should not merely dip his fingertips into it. He should go into it exhaustively. If he is not in any way to have the benefit of the works of the approved legal authors either directly or through the medium of lectures, then what they all did collectively he must do singly, to

reach the same results. But that is impossible, even though he gave his whole life to it. As an example let us consider Bishop on Contracts. Here in 600 pages, based upon nearly 11,000 cases, is presented the work of a legal genius, a man of fine, analytical, judicial mind, a skilled expert, *whose opinions are the most valuable part of the work.* Compare this master work with Huffcut and Woodruff's Cases on Contracts, containing 267 cases and citing 500 cases. The cases are most wisely selected, but will any one seriously contend that any amount of familiarity with this case book will give the student the knowledge of contracts he could gain from Bishop or from lectures conveying the same matter? The case book should be regarded not as a rival or substitute, but as a supplement and an auxiliary to the treatise or lecture.

The professors of The Institute of Law, who are mostly men of long experience in the practice of law, are of one mind, namely: that a fair compliance with the rule of the Supreme Court of California, which requires a knowledge on the part of an applicant for a license of Blackstone, Kent, Greenleaf, Story, Gould, Lube, Parsons and Pomeroy, demands that the results of the labors of these great workers in the vineyard of the cases and of others such as they should be given to the student; they are of the opinion that the case book should be used solely to illustrate certain principles so acquired and to give experience in the critical examination of opinions, the recognition of dicta and the ascertainment of the exact value of decisions; that it lies in the realm of practice rather than of the acquirement of legal knowledge, and that legal knowl-

edge should be gained connectedly and as a compact and symmetrical whole. Upon any one of the authors mentioned, a long list of important questions could be framed, the answers to which would be unknown to the student of the case book on that subject, because outside of his field of knowledge—outside of the inevitable limitations of the case book. For example, the most faithful and brilliant student of the case books of Fetter, and Huffcut and Woodruff, on Equity and Contracts respectively, could not hope to pass unscathed through a searching examination upon the text of Story on Equity Jurisprudence or of Parsons or Bishop on Contracts.

Moreover, a most important consideration is this, that the cases in the case books *were not decided for the instruction of students;* so a case containing a principle which lies at the threshold of a subject may also contain a principle which would come in the very last chapter of a treatise on that subject. Then, too, the diction of judges is intended for lawyers, not for students.

The strongest practical proof of the inadequacy of the exclusive case system is the constantly increasing amount of "piecing out" found in the case books of the most eminent editors, in a kind of desultory effort to fill up in some measure the obvious gaps left by the cases. What can all this result in, in effect, except an imperfect and disjointed treatise?

THE SPECIFIC PLAN ADOPTED.

Accordingly a portion of the time devoted to each subject is, at each session, given, first, to a lecture

based upon and conveying in a manner suited to the purpose, the substance of the master commentators of the law upon the special topic being presented, supplemented, when necessary, by recent decisions, showing a change or further evolution of the law. Among the writers whose renown is as assured in law as that of Euclid in geometry, no one is always and continuously pre-eminent. "Quandoque bonus dormitat Homerus." An author may be unquestionably foremost in his general treatment of a subject and yet be less satisfactory than another at one point and than still another at a second point. One may be best in the statement of a principle and the conclusions which flow from it; another most useful in the illustrations given to support the principle. It is the lecturer's province therefore to give and elucidate the best that can be gathered from *all* the masters on the subject of the lecture.

A second portion of the time is given to a brief examination upon the previous lecture and occasionally a review of all the ground traversed. A third portion is devoted to giving out facts from actual cases to be solved at the next session of the class and to hearing the solution of similar legal problems given out at a prior session. This is found to awaken a lively interest, to engrave the remembrance of principles deeply on the mind, to correct mistaken notions of their meaning, and to test and develop the student's power of applying principles to concrete facts. The benefit from this is similar to that derived from working out by one's own efforts a problem in geometry, while the case book gives him problems fully worked out. Lastly comes the case book and the most zealous advocate of the ex-

clusive case system would be surprised to note the ground traversed and the intelligent, excellent work which can be done in this line by students so prepared for it.

PRACTICE COURT.

The Institute of Law maintains a system of practice courts which is modeled essentially on the California system of courts of record, and consists of the Superior Court, the District Court of Appeal and the Supreme Court.

The Superior Court is presided over by a member of the Faculty, at present Hon. William Arthur Beasly, Judge of the Superior Court, San Jose, Cal. The court holds weekly sessions at which business is transacted in the manner usual before state courts, with the constant instruction, advice and correction of the presiding judge. On given statements of fact, student counsel issue, serve and return regular process, prepare and file the proper pleadings according to the California Code practice, argue demurrers, impanel juries, examine witnesses, and in brief, carry their cases through from summons to final judgment.

Every student in good standing is admitted to the bar in the middle of his second year in the school, and is required to act as counsel in not less than two cases in every semester. Subordinate officers of the court, clients, witnesses, and jurymen are drawn from among the second year students. All students except those of the first year, are required to attend every session of the courts and they receive credit therefor.

The District Court of Appeal and the Supreme Court

hold sessions as often as business requires. They are also under the general supervision of a member of the Faculty, at present Hon. John E. Richards, Judge of the District Court of Appeals for the First Appellate District.

Court is held in a specially furnished court-room.

Lectures on particular phases of the law are given from time to time by the Faculty and by occasional lecturers.

PHILOSOPHY AND POLITICAL ECONOMY.

Thorough courses in Philosophy and Political Economy covering a period of two years are offered by the University in the College of Philosophy and Letters.

All law students who are candidates for the Degree of Bachelor of Arts or Bachelor of Science are required to follow these courses.

Other law students are urged to do so but not obliged.

The Faculty strongly recommend all students to take advantage of these courses because they are of great value in developing the reasoning faculties and in grounding the student in sound principles of ethical conduct—two things absolutely necessary to the soundest and highest success in the legal profession.

SESSIONS AND HOURS.

The school year in the Institute of Law is the same as that for the University in general. It consists of two semesters:

The first semester begins August 16th, 1916, and ends December 21, 1916.

The second semester begins January 4th, 1917, and ends May 23rd, 1917.

The recess at Thanksgiving begins November 28th, 1916, and ends December 1, 1916.

The recess at Christmas begins December 21st, 1916, and ends January 4th, 1917.

The recess at Easter begins April 4th, 1917, and ends April 9th, 1917.

Classes in Philosophy and Political Economy are held during morning hours except on Wednesdays. The length of the periods is fifty minutes.

Classes in legal subjects are held every evening, Wednesday included, at 6:55, and also on Saturday afternoons at 2:30. The length of the period varies from one to one and one-half hours. There are two such periods every evening, making a total of fourteen class-hours in legal subjects.

ENTRANCE REQUIREMENTS.

The Institute of Law is open to the following classes of students:

1st. Those who have the degree of Bachelor of Arts, Bachelor of Science, or their equivalent, from this or some other college or university.

2d. Those who have completed the first two years of college work either at this University or at some other college or university, offering satisfactory courses leading to academic degrees. Students of this class may complete their college work by following the Junior and Senior courses in Philosophy in the College of Arts and Sciences, and thus receive the degree of Bachelor of Arts or Bachelor of Science at the end of

their second year in the Institute of Law, and the degree of Juris Doctor or Bachelor of Laws (according to their qualifications) at the end of the third.

Students of the first and second classes are **regular students.**

3d. Those whose experience in business or whose private study has made up for their lack of collegiate training and whose maturity and seriousness fit them in the discretion of the Faculty, for the study of law. Such are for example young men employed in insurance and real estate offices, banks, railroad offices and law firms, as well as those who have studied privately and so acquired knowledge for which, because of its variety and mode of acquisition, educational institutions are unable, as a rule, to give credit. These are **special students.**

Advanced standing. Any person who, after becoming entitled to enter the Institute of Law as a regular or special student, has been in regular attendance for at least one academic year at another law school, having similar admission requirements, may in the discretion of the Faculty of the Institute of Law, and on such terms, with or without examination, as it may prescribe, receive credit for the work done at such other law school not exceeding in any case two years. The last year must be spent in residence in the Institute of Law.

THE COURSES.

New subjects are entered upon at the beginning of each semester, thus ensuring concentration of attention on a few subjects at a time, and also making it conven-

ient for students to enter in January as well as in August.

Pre-Legal.

Elementary Law.

Three Hours, Two Semesters.

This course is given principally to students in the Sophomore year of the College of Letters and of General Science, who intend to enter the Institute of Law in the next year.

Robinson's Elementary Law, 2d Ed.

Mental Philosophy, Moral Philosophy. Psychology and Political Economy.

The regular courses in these subjects, given in the College of Letters and of General Science, are open to all students of the Institute of Law.

First Year.

The subjects taught in the first year of law do not vary from year to year.

(1) Criminal Law.

One and One-Half Hours, First Semester.

Mikell's Cases on Criminal Law and Procedure.

(2) Criminal Procedure.

One and One-Half Hours, Second Semester.

This course is conducted in a practical manner and includes the preparation of criminal pleadings, and the court work incidental to trials for crime. The pro-

fessor sits as judge, with the students as officers, jurors and witnesses.

Penal Code of California and selected California Cases.

Mikell's Cases on Criminal Law and Procedure.

(3) **Torts.**

Five Hours, Second Semester.

Burdick's Cases, Third Ed.

(4) **Personal Property.**

Four Hours, First Semester.

Lectures and Goddard's Cases on Bailments and Carriers.

(5) **Agency.**

Three Hours, Second Semester.

Huffcut's Cases.

(6) **Common Law Pleading.**

Four Hours, First Semester.

Sunderland's Cases.

(7) **Contracts.**

Three Hours, Both Semesters.

Huffcut & Woodruff's Cases, 2d Ed.

(8) **Debating.**

One and One-Half Hours, Both Semesters.

Second and Third Years.

The following subjects are pursued together by the students of the second and third years, except as noted, and while all of these subjects are not given in

any single year, the course is so varied that every student by the end of his third year has seen all the important branches of the law.

(9) Practice Court.

One and One-Half Hours, Both Semesters.

All second year students are admitted to practice at the first session of the Practice Court for the second semester.

(10) Debating.

One and One-Half Hours, Both Semesters.

(11) Domestic Relations.

Two Hours, One Semester.

Woodruff's Cases, 2d Ed.

(12) Trusts.

Three Hours, Second Semester.

Kenneson's Cases.

(13) Code Pleading.

Four Hours, One Semester.

Sunderland's Cases.

(14) Constitutional Law.

Three Hours, One Semester.

Boyd's Cases, 2d Ed.

(15) Private Corporations.

Three Hours, One Semester.

Richard's Cases.

(16) Wills and Probate Law.

Three Hours, One Semester.

Costigan's Cases.

(17) Evidence.

Four Hours, One Semester.

Wigmore's Cases, 2d Ed.

(18) New Trial and Appeal.

Two Hours, One Semester.

Lectures and Code of Civil Procedure and California Cases.

(19) Equity.

Three Hours, First Semester.

Throckmorton's Cases and Eaton on Equity.

(20) Equity Pleading.

Lectures and syllabi of Professor.

(21) Bills and Notes.

Three Hours, Second Semester.

Bunker's Cases.

(22) California Practice.

Four Hours, Second Semester.

Lectures, Code of Civil Procedure of California and Selected California Cases.

(23) Real Property.

Five Hours, First Semester.

Finch's Cases.

(24) Conflict of Laws.

Two Hours, One Semester.

Dwyer's Cases, 2d Ed.

(25) Partnership.

Two Hours, First Semester.

Gilmore's Cases.

(26) Insurance.

Two Hours, One Semester.

Richard's Cases.

(27) Sales.

Three Hours, First Semester.

Burdick's Cases, last Ed.

(28) Mortgages.

Two Hours, Second Semester.

Kirchway's Cases.

The following additional work must be done privately under the supervision and direction of a member of the Faculty, by all candidates for the degree of Juris Doctor:

(29) Roman Law.

Synopsis, quiz and written examinations as in other law courses, i. e., monthly and at the end of each semester.

Hunter's Roman Law, 4th Ed.

(30) International Law.

Synopsis, quiz and written examinations as in other

law courses, i. e., monthly and at the end of each semester.

Taylor's International Law.

(31) History of English Law.

Synopsis, quiz and written examinations as in other law courses, i. e., monthly and at the end of each semester.

Text to be announced later.

(32) Thesis. See page 163, sec. 3.

SUMMARY OF COURSES GIVEN IN 1916-17.

	Hours 1st Semester.	Hours 2d Semester.
Pre-Legal.		
Elementary Law	3	3
First Year.		
Criminal Law	1½	
Criminal Procedure		1½
Torts		5
Personal Property	4	
Agency		3
Common Law Pleading	4	
Contracts	3	3
Debating	1½	1½
	14	14

Second Year.

	Hours 1st Semester.	Hours 2d Semester.
Evidence	2	2
Conflict of Laws	2	
Constitutional Law		3
Code Pleading	4	
California Practice		4
Wills and Probate	3	
Domestic Relations		2
Practice Court	1½	1½
Debating	1½	1½
	14	14

Third Year.

Evidence	2	2
Conflict of Laws	2	
Constitutional Law		2
Code Pleading	4	
California Practice		4
Wills and Probate	3	
Domestic Relations		2
Partnership	2	
Insurance		2
Practice Court	1½	1½
	14½	13½

EXAMINATIONS.

Written examinations are held monthly in all subjects. Written examinations are also held twice a year on the work of the preceding semesters.

Oral examinations. In addition to the above-mentioned written examinations, at the end of the school year, each student must present himself before an examining board of not less than three members of the Law Faculty and be orally examined by them for forty minutes on the work of the past school year.

The general provisions set out elsewhere in this catalogue relating to Examinations, Promotions, Conditions and Re-examinations, Attendance and Credits, apply to all students of the Institute of Law. Reference is made to them for fuller information.

GRADUATION.

The Faculty of the University reserve the right to make the conditions stricter than they now are for entrance and for graduation, and to provide if they see fit, that such changes when made shall effect all students enrolled in the Institute of Law on or after September 2, 1914.

The Faculty is now considering the advisability of increasing the time of study for graduation in law to FOUR YEARS, and this change if made, will affect all students entering the Institute of Law on or after August 18, 1915.

The following regulations shall apply to all students who enter the Institute of Law on or after September 2, 1914:

In order to graduate or receive the certificate, the student must have completed the regular course of the Institute of Law. This implies:

1. Credit for at least eighty-four credit hours (a credit is the equivalent of one hour a week for one

semester). No one is allowed a credit in any course at which he has not been present ninety per cent of the class hours, and in which his average is not at least passing (seventy per cent).

2. Residence of at least three years in a standard law school, one year of which must have been spent in this Institute of Law.

3. The submission of a satisfactory thesis on some legal question selected by the student and approved by the Faculty. Said thesis must be submitted in accord with the following

Regulations

The thesis must contain not less than five thousand words.

It must represent original work and thought.

It must consist of a thorough discussion of the cases bearing upon the subject, and must not be a mere series of extracts from cases or treatises, loosely strung together.

Pertinent authorities must be cited by giving the volume and page, and also the particular page referred to. In addition to the ordinary citation, the writer should also give the place where the same case may be found in the selected case series and the Reporter system.

It must be in typewriting on paper 8½ by 11 inches in size.

The submission of an acceptable thesis is an absolute pre-requisite to admission to final examinations.

4. In addition to the above requirements, candidates for the Juris Doctor degree must pass all re-

quired tests in Roman Law, International Law, and the History of English Law.

DEGREES AND CERTIFICATES.

Having thus qualified for graduation, the student will be given either the Degree Juris Doctor (J. D.), the Degree of Bachelor of Laws (LL.B) or a certificate stating that he has satisfactorily completed the courses in legal subjects given in the Institute of Law.

The Degree of **Juris Doctor** will be conferred upon the following classes of students providing they have complied with Section 4 of the conditions of graduation:

1st. Those who entered with the degree of A. B. or B. S., or their equivalent from this University or a college or university of recognized standing.

2d. Those who, having entered with credit for the first two years of college work have completed the courses in Philosophy and Political Economy along with their legal studies and have received the degree of A. B. or B. S. from this University.

The Degree of **Bachelor of Laws** will be conferred upon the following classes of students:

1. Those possessing other academic degrees as just explained, who have not complied with Section 4 of the conditions of graduation.

2. Those who, having entered after the completion of the first two years of college work, have confined themselves to law and have maintained throughout their course an average of eighty-five per cent in every subject.

3. Those who, having entered after the completion of the first two years of college work have done satisfactory work in some subjects included in the courses in Philosophy and Political Economy, such work being insufficient to warrant conferring on them the degree of A. B. or B. S., and who have, in addition, maintained throughout their course an average of eighty-five per cent in every legal subject. Where a student has done such work, but, while reaching a passing mark, has fallen below said average of eighty-five per cent in every legal subject, he may nevertheless be awarded the degree of Bachelor of Laws, by special action of the Faculty, the degree of allowance made him being proportioned to the number of hours' work satisfactorily done in Philosophy and Political Economy.

The **Certificate** will be conferred upon the following classes of students:

1. Special students who have throughout their course maintained an average of eighty-five per cent in every legal subject.

2. Special students, who, in addition to their work in law have done satisfactory work in the courses in Philosophy and Political Economy or some subjects included therein, and who have also maintained an average of eighty-five per cent in every legal subject. Where a student has done such work, but, while reaching a passing mark has fallen below said average of eighty-five per cent in every legal subject, he may nevertheless be awarded the certificate, by special action of the Faculty, the degree of allowance made him being proportioned to the number of hours' work satisfactorily done in Philosophy and Political Economy.

ADMISSION TO THE BAR.

It is provided by amended Section 280b of the Code of Civil Procedure of the State of California that any person producing evidence of having satisfactorily completed the three years' course of law prescribed by the Institute of Law of the University of Santa Clara, shall be entitled to a license to practice law in all the courts of this state, subject to the right of the Chief Justice of the Supreme Court of the State to order an examination, as in ordinary cases of applicants without such diploma or other evidence.

Expenses are fully set out elsewhere. **See "Expenses in all the Departments of the University."**

For prizes open to students of the Institute of Law see "Prizes", especially The "Cyc" Prize and the "Corpus Juris Scholarships".

THE DISTRICT COURT OF APPEAL

of the

UNIVERSITY OF SANTA CLARA

1915-1916

HON. JOHN EVAN RICHARDS, A. B., L.L. B.,
Presiding Judge.

Michael Edward Griffith, A. B. '98, Clerk.
Thomas Charles Boone, Reporter.
William Thomas Shipsey, Bailiff.

THE SUPERIOR COURT

of the

UNIVERSITY OF SANTA CLARA

1915-1916

HON. WILLIAM ARTHUR BEASLY, L.L. B.,
Judge.

Clinton Emmett Hurd, Clerk.

William Stewart Cannon, Bailiff.

REGISTER OF LAW STUDENTS.

Ext.—Student residing outside the University.
Res.—Student residing within the University.
Jr.—In Junior Philosophy and Political Economy.
St.—In Senior Philosophy and Political Economy.

Third Year.

Boone, Thomas Charles	Sr.	Res.	Modesto
Bothwell, Floyd Manning		Res.	Los Angeles
Canelo, Adolph Briones, Jr. A. B. '15		Ext.	San Jose
Coschina, Emile Orpheus		Ext.	San Jose
Dorgeloh, John Frederick	Spec.	Ext.	San Jose
Fitzpatrick, James Peter A. B. '15		Ext.	Los Angeles
Fitzpatrick, Keene Leo	Spec. Jr.	Res.	Chicago, Ill.
Ford, Edward Byron A. B. '15		Ext.	San Jose
Griffith, Michael Edward A. B. '98		Ext.	San Jose
Hurd, Clinton Emmett		Res.	Fresno
Lenahan, John Thomas		Ext.	Wilkesbarre, Pa.
McDowell, Herbert	Sr.	Ext.	Fresno
Michel, Max Joseph		Ext.	San Jose
Milburn, Louis Thomas A. B. '15		Res.	Mariposa
Serpa, Louis Robert	Sr.	Ext.	San Jose
Shipsey, William Thomas		Ext.	San Luis Obispo
Willey, Frank Allen		Ext.	San Jose

Second Year.

Atkinson, Miller		Ext.	San Jose
Cannon, William Stewart	Sr.	Res.	San Francisco

Curtin, James Francis	Sr.	Res.	Reno, Nev.
Fitzgerald, Miles Aloysius	Sr.	Res.	San Luis Obispo
Hall, Henry Raymond	Sr.	Res.	Gridley
Herlihy, James Joseph	Sr.	Res.	Los Angeles
Herrin, William Van Clief	Sr.	Res.	San Francisco
Houser, Harry Aloysius Anthony	Sr.	Ext.	Santa Clara
Martin, Nicholas Joseph	Sr.	Res.	San Diego
Miller, Jacob Lester		Ext.	San Jose
Mullen, William Nelson	Jr.	Ext.	Los Gatos
Nicholson, George Aloysius	Sr.	Res.	Alviso
Speciale, Orvis Humphrey	Sr.	Res.	San Jose
Schmidt, Audrey Philip	Spec. Jr.	Ext.	San Francisco
Trabucco, Joseph Eugene	Sr.	Res.	Mariposa
Wallis, Ivor Edgar	Jr.	Ext.	Marysville

First Year.

Aurrecoechea, Joseph Ramon	Jr.	Res.	San Francisco
Bensberg, William Joseph	Jr. Spec.	Res.	Santa Clara
Chargin, Victor Anthony A. B. '14		Ext.	San Jose
Connor, John Richard	Jr.	Ext.	Seattle, Wash.
Gairaud, Leo Louis	Jr.	Ext.	San Jose
Hickey, Thomas Edward	Jr.	Res.	S. S'n Francisco
Jensen, Elmer Darrell	Jr.	Ext.	San Jose
Maher, Elmer Walsh	Spec.	Ext.	San Jose
Noeltner, Clarence Frederick, Jr.	Jr.	Res.	San Diego
Ryan, Theodore William	Jr. Spec.	Res.	San Diego
Stewart, Ronald Grant	Jr.	Ext.	San Jose
Sweezey, Claude Bernard	Jr. Spec.	Res.	Monterey
Tiangco y Venegas, Enrique	Sr.	Res.	Balangà, Bataan, P. I.

School of Pedagogy

SCHOOL OF PEDAGOGY

The growing demand for young men in the teaching profession, in which male teachers are comparatively few, is being met by the Colleges and Universities of the United States in various ways.

The University of Santa Clara has not neglected to do her part in this work, though for the most part her graduates who have entered the teaching profession have found congenial employment in the Preparatory or High School of the University. With the growth of the teaching profession and the increased demand for male teachers and the increased salaries offered teachers, it is but natural that in the coming years an ever increasing number of young men will elect to follow this noble calling which possesses such a fascination for men who have the gifts requisite for such work.

The University offers the following special courses in pedagogy. The student will find in them in due proportion the history, theory and practice of education. The practical work in education is conducted in the Preparatory Department of the University, under the direction of experienced teachers.

(1) History of Education.

Three Credits. **Three Hours, One Semester.**

A historical treatment of the various systems of education in ancient, medieval and modern times.

(2) Systems of Education.

Two Credits. **Two Hours, One Semester.**

A study of the principal systems of education. The various principal systems are first studied by themselves and then a comparative study is made.

(3) Educational Psychology.

Three Credits. **Three Hours, One Semester.**

A brief course in psychology and the bearing of certain psychological facts on the work of education. Mental development. Instincts. Individuality.

(4) Child Study.

Two Credits. **Two Hours, One Semester.**

A special course in the psychology of childhood. Physical and mental development.

(5) Philosophy of Education.

Two Credits. **Two Hours, One Semester.**

The definitions of education. False notions of education. The principles underlying all education.

(6) Education in Theory and Practice.

Two Credits. **Two Hours, One Semester.**

A more detailed study of the theory of education; educational methods. Actual practice in the classroom.

(7) Classroom Management.

Two Credits. **Two Hours, One Semester.**

Discipline. Order. Forms of discipline. Factors in discipline.

(8) High School Administration.

Two Credits. **Two Hours, One Semester.**

History and place of the High School in the American Educational System. Programs of studies. Divisions of time. Order of Classes. Marking of pupils. Records. Reports. Texts. Teachers.

Pre-Medical Course

THE PRE-MEDICAL COURSE

The course is designed to comply with the entrance requirements of the best medical schools in the United States, and to give the student a preliminary laboratory training which will familiarize him with future work.

FRESHMAN YEAR.

Before entering upon their Freshman year the students must have completed the regular High School curriculum of the College, or an equivalent amount to 16 units as described on page 50, consisting of courses in English Literature, the Classics, History, English Composition, Mathematics, Modern Languages, German or French.

These same subjects are continued during the Freshman and Sophomore years. During the Junior and Senior years, besides the work outlined above, they receive thorough courses in Logic, Ontology, Psychology, Ethics and Political Economy to the amount of 12 semester hours.

For the courses in Literature, History and Philosophy see these subjects in the College of Philosophy and Letters and General Science.

CHEMISTRY.

(a) General Inorganic Chemistry.

Six Credits. **Lecture Three Hours a Week, One Year.**

Fundamental laws of Chemistry. Chemical prob-

lems and equations. Study of the elements and principal compounds.

(b) General Inorganic Chemistry.

Two Credits. Laboratory Four Hours a Week, One Semester.

(This course accompanies course 1.)

Practical demonstration of Chemical Laws and Theories. Preparation of principal elements and compounds, together with the practical demonstration of their properties, tests, combinations and decompositions.

(c) Qualitative Analysis.

Two Credits. Laboratory Four Hours a Week, One Semester.

Wet method. Detection of metals, non-metals and acid radicals. Use of the blow-pipe.

(See Courses 1, 2, 3, 6, in Chemistry, pages 68 and 69.)

SOPHOMORE YEAR.

PHYSICS.

Lecture Three Hours a Week.

Ten Credits. Laboratory Four Hours a Week, One Year.

Mechanics, Sound, Light, Heat, Electricity, Physical Measurements.

(See Courses 1, 2, 3, 4, in Physics, pages 64, 65 and 66.)

JUNIOR YEAR.

CHEMISTRY.

1. (a) General Organic Chemistry.

Six Credits. Lecture Three Hours a Week, One Year.

Constitution, Classification, Decomposition and Syn-

thesis of Organic Compounds. Paraffins, Olefins, Acetylenes, Terpenes, Benzenes and their derivatives.

(b) General Quantitative Analysis.

Two Credits. Laboratory Four Hours a Week, One Semester.

Gravimetric, Electrolytic, Volumetric methods. Preparation of standard solutions.

(c) General Experimental Organic Chemistry.

Two Credits. Laboratory Four Hours a Week, One Semester.

Practical demonstration of properties, tests, combinations and decompositions of organic compounds. Preparation and a study of typical organic substances.

(Courses 2 and 3 accompany Course 1.)

(See Courses 7, 8, 9, in Chemistry, pages 69 and 70.)

GENERAL BIOLOGY.

2. This course is divided into two semesters, the first of which is occupied mainly with Structural and Physiological Botany, and the second with Zoology and a brief course in Cytology. Seven hours a week are devoted to the subject, this time being divided between lectures and laboratory at the discretion of the Professor.

(a) First Semester.

1. Scope and subdivision of the science.
2. Distinction between Vital and Non-Vital forces.
3. Botany. The seed. Structure. Chemistry of the food supply. Consideration of Dicotyledonous and Monocotyledonous forms.

4. Germination. Chemistry of Germination. Enzymes and Enzymic action.
5. Development of seedling. Photosynthesis.
6. The root and its various forms. Root hairs, and study of Osmosis.
7. The stem. Vascular system and nature of fluid movements.
8. The Leaf. Nature of work and study of Stomata. Consideration of hygroscopic movements.
9. Endogenous and Exogenous growth.
10. Fertilization and structure of the flower.
11. Thallophyta. The Algae. Kelp. Spirogyra. Cladophora and similar types.
12. The Fungi.
13. Reproduction in the Thallophytes and Evolution of Sex.
14. The Briophyta. Study of methods of reproduction and formation.
15. Pteridophyta. Special study of the Fern. Histology of the Fern. Brief consideration of Zonation.

(b) Second Semester.

1. The Cell. Anatomy and Metabolism.
2. Protoplasm and its nature.
3. Karyokinesis.
4. Cell Continuity. Importance of Cytology to Biology.

5. Phenomena of Maturition.
6. Reproduction.
7. Various theories of Evolution and Heredity.
8. Heredity and Mendelism.
9. Brief mention of Colloidal and Crystalloidal states of matter.
10. The Protozoa. Amoeba. Paramoecium. Vorticella.
11. Porifera.
12. Coelenterata.
13. Echinodermata.
14. Molusca.
15. Arthropoda.
16. The Chordata.

A selection is made and dissections required.

17. Dissection and study of the Earthworm.
18. Dissection and study of the Frog or Toad.
19. Dissection and study of the Cat or Rabbit.
20. Brief Comparative Anatomy.
21. Personal Hygiene.

SENIOR YEAR.

HISTOLOGY, BACTERIOLOGY AND EMBRYOLOGY.

3 (a) General and Special Histology.

Five Credits.

Lecture Two and One-Half Hours a Week, One Year.

The Cell. Epithelial, Connective, Muscle and Nerve Tissues. Circulatory and Lympathic Systems. Aliment-

ary Tract. Digestive Glands. Respiratory, Urinary and Genital System. Skin and its appendages. Eye, Ear, Senses of smell, touch and taste.

(b) Histology.

Four Credits. Laboratory Four Hours a Week, One Year.

Use of microscope. Preparation and examination of stained and unstained tissues. Slide technic with Paraffin and Celloidin. Study of prepared slides.

4 (a) Bacteriology.

A brief course including the history and definition of the science. Nature and classification of bacteria. Their morpholgy, grouping, mode of multiplication, spore formation, motility. Principles of sterilization. Principles involved in the methods of isolating bacteria.

Study of different culture media. Principles of Aerobic and Anaerobic Cultures. Morphology, Pathology and Biological properties of the more important bacteria.

Principles of Toxins, Antitoxins, Agglutinins, Precipitins and Vaccines.

(b) Laboratory.

Preparation of Agar-agar tubes and Petri Plates. Study of colonies. Stab cultures and slant cultures. Some common staining methods.

5 (a) Embryology.

Four Credits. **Four Hours a Week, Two Semesters.**

Cell Division.

Spermatozoon and spermatogenesis. Ovum. Ovulation.

Maturation, Migration and Impregnation.

Segmentation and general development—Foetal membranes. Development of Special Organs.

Heart—Primary and secondary embryonic circulations.

Spinal Cord and Brain—Histogenesis of the Nervous System.

Alimentary and Respiratory Tracts—Mouth, pharynx, oesophagus, stomach, intestines, liver, pancreas.

Urinogenital System—Development of Kidneys, ureter and sex organs.

Development of the Skeletal System—Muscles and special sense organs.

(Development of special organs is an elementary course.)

(b) Laboratory.

Study of chick embryo in living specimen, 24-72 hours incubation.

Study of chick embryo whole mounts, 4 segments to 72 hours. Study of serial, cross and sagittal sections of chick embryo, 4 segments to 72 hours.

Study of early development, and organs supplemented by modeling. Dissection of hardened pig embryos.

Commercial Department

COMMERCIAL DEPARTMENT

These courses require a definite amount of work, but the time for completion depends entirely upon the ability and the application of the student. Free range is given to individual effort. The course of study is so arranged that studies in other departments of the University may be pursued also. The general and the technical subjects are combined to give mental discipline and general culture, at the same time preparing the student for the practical affairs of business. All students in this Department are required to attend one of the English courses in the Preparatory or High School Department.

Besides written examinations, each candidate for graduation is orally examined by a committee of the Faculty for thirty minutes in all the subjects seen during the past year.

The general provisions regarding Attendance, Examinations, Promotions, Conditions, etc., set forth elsewhere in this catalogue, apply also to this Department.

Upon graduation, each student is given the Commercial Certificate.

First Year.

(1) Elementary Bookkeeping.

One-Half Credit. **Five Hours, First Semester.**

Using from the first, sales-book, purchase-book, cash-book, journal and ledger. Drills in journalizing, statements, business forms. Text: Rowe.

(2) Wholesale Set.

One-Half Credit. **Five Hours, Second Semester.**

With the special features of columnar work, controlling accounts, general ledger and sales ledger, analysis sheets, note books as posting mediums, loose leaf sales book, posting from orders, and valuable drills in arithmetic and commercial paper, several different forms of balance sheets. Text: Rowe.

Second Year.

(3) Commission Set.

One-Half Credit. **Five Hours, First Semester.**

Use of twenty column cash-journal account-sales register, business letters, bill of lading, commission sales book, bill and charge system, card ledger, elementary work in opening and closing corporation accounts and advanced financial statements. Text: Rowe.

(4) Banking.

One-Half Credit. **Five Hours, Second Semester.**

Both cash book and journal methods. Practical training in Bank bookkeeping and the duties of Bank officers and clerks. Clearing-house explained and practically illustrated by the handling of all business papers and commerce followed by practice in two College Banks which clear and balance cash book daily. Exchange, Loan and Collection departments are conducted. Trial balances, statements and remittances to Correspondents are made weekly and Bank Examiner reports regularly: Texts: Rowe, Ellis, Goodyear.

Third Year.

(5) Cost Accountancy.

Three-Tenths Credit. **Three Hours, First Semester.**

Illustrating shop management, voucher system, changing partnership to corporation, reserve and surplus accounts, internal checks, stock book, cost sheets and highly classified trading and financial statements. Text: Rowe.

(6) Electives.

Three-Tenths Credit. **Three Hours, Second Semester.**

Real Estate and Insurance Set, Railway Accounting and Farm Accounting. These Sets illustrate the use of insurance policies and registers, preparing and filing deeds and mortgages, leases, protesting, acknowledgements, bill of lading, abstracts of title, railway stationery, Freight Cash Book, Freight Forwarded and Received Book, telegrams, and some entirely new features in farm bookkeeping. Text: Goodyear.

(7) Bookkeeping and Accounting Problems.

One-Fifth Credit. **Two Hours, Second Semester.**

Part Two—Bennett. During these periods the theory of bookkeeping is discussed in all its forms, and demonstrated by practical application. The work is prepared by the student out of class, critically examned by the instructor and returned with corrections marked.

(8) Business Law.

One-Fifth Credit. **Two Hours, First Semester.**

Through problems and quizzes the student is made

familiar with all the usual customs and business forms; with contracts, their operation and discharge, sale and bailment of goods, credit and loans, guaranty, negotiable instruments, agency, master and servant, partnerships and joint-stock companies, corporations, real and personal property.

(9) Business Practice and Administration.

One Credit. **Five Hours, Two Semesters.**

Here the student learns bookkeeping **practically** by recording the transactions as they arise not knowing beforehand what will take place. There are buying and selling, money to pay and money to receive, credit given and credit allowed; there are checks, drafts, notes, receipts, invoices, statements, etc., to receive, to deliver, and to make record of—every phase of actual business being exemplified. The student must show at all times what he knows. There is a different set of transactions for every student. The Ellis Cabinet-Card System is used.

(10) Business Spelling.

Three-Fifths Credit. **Three Hours, Two Semesters.**

Including a study of roots, prefixes, suffixes, syllabication, diacritical marks, spelling rules, defining words, and their use in sentences. Text: Marshall.

(11) Penmanship and Dictation.

One Credit. **Five Hours, Two Semesters.**

Particular attention is given to position, form, movement and speed. Daily drills are given on various movement exercises, to help get smooth lines, to estab-

lish correct pen-holding, to loosen the muscles, to increase the speed, to fix firmly the habit of correct movement, and thus lay the foundation for a good business hand. Speed practice is a special feature of the course. Text: Zaner.

(12) English Essentials and Letter Writing.

Two-Fifths Credit. **Two Hours, Two Semesters.**

Special attention devoted to correcting the students' deficiencies and developing accuracy in grammar, punctuation, the use of words and discrimination of synonyms. The student writes a series of business letters, in accordance with data and conditions furnished by the instructor who carefully examines, marks for corrections and returns them to the student to be rewritten. Text: Davis & Linghan.

(13) Business Arithmetic and Rapid Calculation.

One Credit. **Five Hours, Two Semesters.**

Addition drills, invoice extension, percentage as applied to business problems, profit and loss, commission, trade discounts, insurance, interest by banker's method training the student to solve the various problems with the fewest possible figures, banker's daily balances, saving accounts, exchange, metric system, equations and cash balance, dividends and investments, partitive proportion, partnership and storage. Short practical methods emphasized. Text: Moore and Miner, McIntosh.

(14) Auditing.

One-Fifth Credit. **Two Hours, One Semester.**

Work consists of experting books in Business De-

partment, and problem work furnished by the instructor, the scope and conduct of an audit, errors of ignorance, fraud and mistake, kinds of audits, their purposes and advantages, duties and qualifications of an auditor, balance-sheet audit, the detailed audit, corporation tax law and depreciation, bank, mercantile and manufacturing audits, investigations, liabilities of auditors and directors, certified public accountant laws and examinations. Text: Montgomery.

(15) Office Practice.

One Credit. **Five Hours, Two Semesters.**

Each student at some time during his course enters and conducts all of the offices, which include two banks, two wholesale houses, commission house, real estate and insurance and freight office. He learns how to use the adding machine in making statements, checking invoices and trial balances, figuring interest and summarizing. Modern methods of bookkeeping are used exemplifying columnar books, controlling accounts, trial balance proofs, loose-leaf ledgers, filing systems and billing machine. He becomes a stockholder and attends business meetings, learning parliamentary usages. Daily cash balances and reports are made, including check figures and figure trial balances.

(16) Shorthand and Typewriting.

Two Credits. **Ten Hours, Two Semesters.**

The Pitmanic system of shorthand is taught, and as its value to a student is ordinarily measured by his general English education, it is recommended only to the advanced student. The object of the instruction in

typewriting is to impart a correct scientific method of fingering and a skillful, uniform touch, and to train the students in all the details of form and arrangement of transcript. The work includes business letters of all kinds, tabulated statements, articles of agreement, certificates of incorporation, the writing of a will and other legal forms. Text: Howard-Pitman Manual Typewriting by the Touch Method, Bell & Wasson.

(17) Stenotypy.

A course in Stenotypy lasting through both semesters will be given if a sufficient number of students present themselves.

Preparatory Department

HIGH SCHOOL OR PREPARATORY DEPARTMENT

First Year.

(1) Latin.

One-Half Credit. **Eight Hours, One Semester.**

Precepts: Etymology and Syntax. Text: Pearson, Essentials of Latin. Authors: Caesar, Selections. Practice: Themes.

(2) Latin.

One-Half Credit. **Eight Hours, One Semester.**

Precepts: Etymology and Syntax. Text: Pearson, Essentials of Latin. Authors: Caesar, Gallic War. Practice: Themes in Imitation.

(3) English.

One-Half Credit. **Five Hours, One Semester.**

Precepts: Scott & Denney's Elementary English Composition, first half. Authors: Macaulay, Lays of Ancient Rome; Scott, Lady of the Lake, Ivanhoe. Practice: Weekly Compositions.

(4) English.

One-Half Credit. **Five Hours, One Semester.**

Scott & Denney's Elementary English Composition, second half. Authors: Irving, Sketch Book; Dickens, Christmas Carol. Practice: Weekly Composition.

(5) Religion.

One-Fifth Credit. Two Hours, One Semester.

Christian Doctrine. Baltimore Catechism thoroughly reviewed. Kinkead's Explanation of the Baltimore Catechism.

(6) Religion.

One-Fifth Credit. Two Hours, One Semester.

Kinkead's Explanation of the Baltimore Catechism.

(7) Mathematics.

One-Half Credit. Five Hours, One Semester.

Algebra. Text: Well's Algebra, from beginning to factors inclusive.

(8) Mathematics.

One-Half Credit. Five Hours, One Semester.

Algebra: Text: Wells' Algebra, from factors to quadratics inclusive.

(9) History.

One-Half Credit. Five Hours, One Semester.

The Ancient Nations, and Greece. Text: Webster, Ancient History.

(10) History.

One-Half Credit. Five Hours, One Semester.

Roman History to Charlemagne. Text: Webster, Ancient History.

Second Year.

(11) Latin.

One-Half Credit. Eight Hours, One Semester.

Precepts: Etymology and Syntax reviewed in analy-

sis work. Bennett's Latin Grammar. Authors: Caesar, Gallic War, two books; Gunnison & Harley's Edition. Practice: Themes in Imitation.

(12) Latin.

One-Half Credit. **Eight Hours, One Semester.**

Precepts: Syntax reviewed in analysis work, concluded. Bennett's Latin Grammar. Themes in Imitation. Authors: Caesar, Gallic War, two Books; Gunnison & Harley's Edition.

(13) English.

One-Half Credit. **Eight Hours, One Semester.**

Precepts: Donnelly's Imitation and Analysis. Authors: Outlines, Longfellow, Whittier, Holmes, Lowell; Stevenson, Treasure Island. Practice Composition. Exercises.

(14) English.

One-Half Credit. **Five Hours, One Semester.**

Precepts: Donnelly's Imitation and Analysis. Authors: Shakespeare, Julius Caesar; Cooper, The Spy; Parkman, Oregon Trail. Practice: Composition. Exercises.

(15) Religion.

One-Fifth Credit. **Two Hours, One Semester.**

Christian Doctrine. Text: Kinkead's Explanation of the Baltimore Catechism, second half.

(16) Religion.

One-Fifth Credit. **Two Hours, One Semester.**

Christian Doctrine: Text: Deharbe, Full Catechism of the Christian Religion, Part II.

(17) Mathematics.

One-Half Credit. Five Hours, One Semester.

Algebra to Quadratics reviewed. Text: Wells' Algebra.

(18) Mathematics.

One-Half Credit. Five Hours, One Semester.

Algebra to Quadratics to end. Text: Wells' Algebra.

(19) History.

One-Half Credit. Five Hours, One Semester.

Medieval History. Fredet's Medieval and Modern History.

(20) History.

One-Half Credit. Five Hours, One Semester.

Modern History. Text: Fredet's Medieval and Modern History.

Third Year.

(21) Latin.

One-Half Credit. Eight Hours, One Semester.

Precepts: Syntax. Bennett's Latin Grammar. Authors: Cicero, first three orations against Catiline. Practice: Themes in Imitation.

(22) Latin.

One-Half Credit. Eight Hours, One Semester.

Precepts: Syntax. Bennett's Latin Grammar. Authors: Cicero's Fourth Oration against Catiline, the orations Pro Archia and Pro Marcello. Practice: Themes in Imitation. Original Exercises.

(23) English.

One-Half Credit. **Five Hours, One Semester.**

Precepts: Text: Scott & Denney's New Composition-Rhetoric. Authors: Gray, Poems, Coleridge, Ancient Mariner; Arnold Sohrab and Rustum. Practice: Composition, Written exercises.

(24) English.

One-Half Credit. **Five Hours, One Semester.**

Precepts: Text: Scott & Denney's New Composition-Rhetoric. Authors: Shakespeare, Merchant of Venice. Hughes, Tom Brown's School Days, Lincoln's Speeches. Practice: Composition, Written Exercises.

(25) Religion.

One-Fifth Credit. **Two Hours, One Semester.**

Christian Doctrine. Text: Deharbe, Full Catechism of Christian Religion, Part III.

(26) Religion.

One-Fifth Credit. **Two Hours, One Semester.**

Christian Doctrine. Text: Deharbe, Full Catechism of Christian Religion, Part I.

(27) Mathematics.

One-Half Credit. **Five Hours, One Semester.**

Plane Geometry. Algebraic Applications. Text: Wentworth, Plane Geometry.

(28) Mathematics.

One-Half Credit. **Five Hours, One Semester.**

Plane Geometry. Algebraic Applications. Text: Wentworth, Plane Geometry.

(29) History.

One-Half Credit. Five Hours, One Semester.

History of England. Text: Cheyney, History of England.

(30) History.

One-Half Credit. Five Hours, One Semester.

History of England. Text: Cheney, History of England.

(31) Greek.

One-Half Credit. Five Hours, One Semester.

Precepts: Etymology and Syntax. Text: White's First Greek Book. Practice: Themes.

(32) Greek.

One-Half Credit. Five Hours, One Semester.

Precepts: Etymology and Syntax. Text: White's First Greek Book. Xenophon's Anabasis, two books Lucian's Dialogues. Practice: Translation of sentences based on the authors.

Fourth Year.

(33) Latin.

One-Half Credit. Five Hours, One Semester.

Precepts, Syntax. Authors: Cicero, De Senectute. Virgil, Three Books. Practice: Themes in Imitation. Original Exercises. Bradley's Edition of Arnold's Latin Composition. Easy Latin Conversation.

(34) Latin.

One-Half Credit. Five Hours, One Semester.

Precepts: Prosody. Authors: Cicero, Narrations, Vir-

gil, Three Books. Practice: Themes in Imitation. Original Exercises. Bradley's Edition of Arnold's Latin Prose Composition. Easy Latin Conversation.

(35) English.

One-Half Credit. **Five Hours, One Semester.**

Precepts: Text: Blaisdell's Composition-Rhetoric. Authors: Macaulay, Johnson and Goldsmith, Tennyson, Idylls of the King. Practice: Composition. Exercises in simpler forms of verse.

(36) English.

One-Half Credit. **Five Hours, One Semester.**

Precepts: Text: Blaisdell, Composition-Rhetoric. Authors: Dickens, A Tale of Two Cities, Shakespeare's Richard III; Browning, Cavalier Tunes. Practice: Composition. Exercises in simpler forms of verse.

(37) Religion.

One-Fifth Credit. **Two Hours, One Semester.**

Christian Doctrine. Text: Gibbons, Faith of Our Fathers, first half.

(38) Religion.

One-Fifth Credit. **Two Hours, One Semester.**

Christian Doctrine. Text: Gibbons, Faith of Our Fathers, second half.

(39) Mathematics.

One-Half Credit. **Five Hours, One Semester.**

Solid Geometry. Text: Wentworth, Plane and Solid Geometry.

(40) Mathematics.

One-Half Credit. **Eight Hours, One Semester.**

Plane and Spherical Trigonometry. Text: Wentworth.

(41) History.

One-Half Credit. **Five Hours, One Semester.**

History of the United States. Text: Muzzey, American History.

(42) Civil Government.

One-Half Credit. **Five Hours, One Semester.**

The Government of the village, town and city. Activities and duties of the citizen. The State and Federal Governments. Text: Garner's American Government.

(43) Physics.

One-Half Credit. **Five Hours, One Semester.**

A course in elementary Physics with copious laboratory experiments. Text: Milliken & Gale, First Course in Physics. Also Milliken & Gale, Laboratory Course in Physics.

(44) Physics.

One-Half Credit. **Five Hours, One Semester.**

A continuation and completion of Elementary Physics. Text: Milliken & Gale, First Course in Physics. Also Milliken & Gale, Laboratory Course in Physics.

(45) Greek.

One-Half Credit. **Five Hours, One Semester.**

Review of Etymology and Syntax: White's Beginner's Greek Book. Author: Homer, The First Book of the Iliad and one-half of the Second. Practice: Exercises in translating from English into Greek.

(46) Greek.

One-Half Credit. **Five Hours, One Semester.**

Etymology and Syntax. Text: White's Beginner's Greek Book. Author: Homer, The last half of the Second Book of the Iliad, the Third Book. Practice: Exercises in translating from English into Greek.

GENERAL PROVISIONS FOR HIGH SCHOOL OR PREPARATORY DEPARTMENT.

Greek is required only for those students who intend to proceed to the degree of Bachelor of Arts.

Physics is required of students preparing to enter the College of Engineering and the College of General Science.

Commercial branches (twenty hours) may by special arrangement be taken after the first year of the preparatory school. This is not, however, recommended in the case of students who intend to enter University courses.

Modern Languages (five hours) may be elected during the last two years of the preparatory course.

For information as to Written Work, Attendance, Examinations, Promotion, Conditions, Failures, etc., see "**General Provisions Regarding Scholarship and Standing,**" **elsewhere in this catalogue.**

HIGH SCHOOL OR PREPARATORY DEPARTMENT

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
Subject	Hrs.	Subject	Hrs.	Subject	Hrs.	Subject	Hrs.
Latin	8	Latin	8	Latin	8	Latin	5
English	5	English	5	English	6	English	5
Religion	2	Religion	2	Religion	2	Religion	2
Algebra 1st year	5	Algebra 2d year	5	Plane Geometry	5	Solid Geometry 1st sem.	5
Ancient History	5	Modern and Medieval History	5	History of England	5	Plane Trigonometry 2d sem.	5
		*Commerc'l Subjects	20	*Greek	5	*Greek	5
				*Mod. Language	5	Civics, 1st sem. History of U. S. 2d sem.	5
				*Commerc'l Subjects	20	†Physics	5
						*Mod. Language	5
						*Commerc'l Subjects	20

† Pre-requisite for Engineering Courses.
* Elective.

UNIVERSITY EVENTS

MUSICAL AND DRAMATIC ENTERTAINMENT

In Honor of

SAINT PATRICK

THURSDAY EVENING, MARCH 16, 1916.

PROGRAM

1. Overture, "Salute to Erin".....Lamotte
   University Orchestra
2. "The Beach Boys on Parade".....
   .....Frank Browne and Frank O'Neil
3. "Robert Emmet's Speech".....Percy O'Connor
4. Intermezzo, "Anvil Chorus from Il Trovatore".....Verdi

4—MUSICAL MELODY MEN—4

In catchy renditions of the Latest Songs and Ballads
Supported by the Continent-wide Success
ALF KAV'S ORCHESTRA
Personel—Singers: Messrs. Bergna, Diaz, McNeil, Kavanagh.
Instrumentalists: Messrs. McGurrin, Crowley, Haskamp, Cannon, Trabucco

6. Xylophone, "My Wild Irish Rose".....Joseph McKiernan
7. Selections ..... University Band
   (a) "Living Pictures" (Darien). (b) "Miserere" (Verdi)
8. Tenor Solo, "A Little Bit of Heaven".....Ernest Ball
   Roy Emerson
9. Selections from Favorite Operas.....E. W. Berry
   University Band
10. Engagement Extraordinary
    Joe—SNEEZE & DONOHUE—Jiggs

In a Two Part Melodrama entitled
"Where the River Shannon Flows by Request"

11. Hawaiian Sextette—The Hui Lei Ilima Sextette in Hawaiian Melodies: "Old Plantation," "Hawaiian Hula," "Like-No-a-Like," "Almost Home," "Monakea," "Waikiki."

12. Finale—Humoresque: "On My Way to Dublin Bay"....
.....Lampe
University Orchestra.

ANNUAL PRIZE ELOCUTION CONTEST

of the

UNIVERSITY OF SANTA CLARA

in the

University Auditorium, Tuesday Evening, March 28th, 1916
at 8:15 o'clock

JUDGES

LAWRENCE A. BOWDEN, ESQ.
DAVID M. BURNETT, ESQ.
JAMES H. CAMPBELL, ESQ.
JOHN J. JONES, ESQ.
REV. THOMAS J. O'CONNELL, A. B. '92

PROGRAM

Selection from "Aida".....Verdi
University Orchestra

Introductory Remarks.....Clarence K. Canelo '18

For the JUNIOR PRIZE

Poor Little Joe.....Arkwright
John de B. Haley, 2nd High

The Level Crossing.....Anonymous
Michael J. Kennedy, 2nd High

Lasca .....Anonymous
J. Victor Clarke, 4th High

Selection—Nodding Poppies .....Mustol
University Orchestra

Patrick Henry's Speech .....
Thomas J. Ford, 4th High

The Volunteer Organist .....Foss
Tirey L. Ford, Jr., 4th High

The Skeleton in Armor.....Longfellow
Hoit C. Vicini, 4th High

Intermezzo—Dublin Bay Patrol.....Lampe
University Orchestra

For the UNIVERSITY PRIZE

The Australian Dukite Snake.....O'Reilly
Horace B. Wilson, '19

Crime Its Own Detector.....Webster
Edwin Harter, '18

Paul Clifford's Defense.....Bulwer
Frank T. O'Neil, '18

How the La Rue Stakes Were Lost.....Anonymous
Robert E. Tremaine, '18

The Corsican ..... Wilford
Elmer D. Jensen, '17

Selection—Waltz from Faust.....Gounod
University Orchestra

The Burgomaster's Remorse.....From "The Bells"
Jos. R. Aurrecoechea, '17

The Widow of Naim.....Willis
Nicholas J. Martin, '16

Spartacus .....Knowles
Edward B. Ford, '16

The Old Surgeon's Story.....Donnelly
Roy P. Emerson, '16

The Leper .....Willis
Thomas C. Boone, '16

Finale—Just Try to Picture Me Way Down in Tennessee..
.....Berlin
University Orchestra

Note—The University Orchestra is under the direction of S. J. Mustol, D. Mus.

THE RYLAND DEBATE

University Auditorium, Tuesday Evening, April 18, 1916
at 8:15 o'clock

THE QUESTION: Resolved: That the United States should place an embargo upon the exportation of munitions of war to belligerent nations.

JUDGES:

Hon. William A. Beasly — Mr. Clarence C. Coolidge
Mr. Frank H. Bloomingdale — Mr. Owen D. Richardson
Mr. Nicholas Bowden — Mr. John W. Ryland

The decision of the judges as to the side winning the debate will be announced at the close of the debate; the winners of the Ryland Prizes will be announced at the Commencement Exercises in May.

PROGRAM

Sunnyland Waltz .....University Orchestra
Introductory.....Mr. James P. Sex, Chairman

AFFIRMATIVE HOUSE OF PHILHISTORIANS

Representative Joseph R. Aurrecoechea, '17
Representative Jordan L. Martinelli, '19
Representative Gerald M. Desmond, '18

NEGATIVE PHILALETHIC SENATE

Senator Wm. Stewart Cannon, '16
Senator Thomas C. Boone, '16
Senator Adolph B. Canelo, '15

Hungarian Dance, No. 5 (Brahms).....University Orchestra
Decision of the Judges

Old Bill Bailey.....University Orchestra

The decision of the Judges was given in favor of the Negative side.

THE JUNIOR DRAMATIC SOCIETY

Presents

"ALL THE COMFORTS OF HOME"

A Comedy in Four Acts

Tuesday Evening, May 2, 1916, in the University Auditorium

THE PLAYERS

(Characters are named in the order of their first appearance)

Mr. Egbert Pettibone, seeking his son's welfare.....
.....Joseph R. Aurrecoechea
Theodore Pettibone, his son, Harvard Medical '15.....
.....Joseph M. Taber
Ludkins, Pettibone's servant.....Richard H. Eisert
Alfred Hastings, M. D., Pettibone's nephew..Thomas V. McNeil
Tom McDow, his protege, who "gits half".....
.....Francis M. Conneally

Victor Smythe, classmate of Theodore's..Benjamin T. Williams
Caruso Dabney, a broken-down music teacher.....
.....Arthur C. Devlin
Judson Langhorne, young man of leisure.....Hoit C. Vicini
Chester Playwell, an actor.....Bernard J. Baratono
Josiah Bender, Esq., a retired banker.....Louis A. Bergna
Jack Bender, his son, who would be an actor..Tirey L. Ford Jr.
Struthers, a voice from the rear.....The Prompter
Augustus McSnath, friend of Pettibone's youth.....
.....Richard H. Eisert
Messenger, Western Union.....John B. Hiller
Also a dog.

SCENE: (unchanged) DRAWING ROOM IN PETTIBONE'S HOUSE.

Act 1: Pettibone leaves for Europe. Alfred, his nephew, left in charge of the house. Decides to let the house to boarders. Alfred takes Tom McDow into partnership; and Tom "gits half". Boarders arrive.

Act 2: One week later. No peace in the house. Jack Bender meets Playwell and practices to go on the stage, all unknown to his father.

Act 3: Another morning. Unexpected news. Theodore Pettibone wires he is coming home without his father's knowledge. Alfred tries to get all the boarders out. Old Mr. Bender discovers that his son Jack is rehearsing for the stage, and immediately disowns him.

Act 4: Theodore returns; also old Pettibone unexpectedly returns. Theodore explains matters to his father, and becomes reconciled to him and is to practice medicine with Victor Smythe, who, Pettibone thought, was after his son's money. The Benders, father and son, make up. Alfred explains how he made all those good friends.

MUSICAL PROGRAM

1. Overture—Light Cavalry (by request).
2. Concert Waltz—Kiss of Spring.

3. Intermezzo—Dance of the Frowsey Heads.
4. Finale—March—What a Wonderful Mother You'd Be.

The orchestra is under the direction of Prof. S. J. Mustol.

During the intermission between Acts 2 and 3 the musical selections will be played by Alf. Kavanagh's Demented Orchestra: Messrs. Crowley, Trabucco, McKiernan, Alvaraz, Kavanagh.

Properties were kindly loaned by Howell Furniture Co., Santa Clara.

A Popular Experimental Lecture on

CARBONIC ACID GAS

Given by

THE REV. F. J. McGARRIGLE, S. J.

Professor of Inorganic Chemistry,

Assisted by Messrs. Roy Fowler and Walter Wassum

In the University Auditorium, Tuesday Evening, May 9, 1916

At Eight o'clock

MR. J. A. SWAREN

Of the Pelton Water Wheel Co.,

Gave a Series of Lectures on

WATER POWER DEVELOPMENT.

SIXTY-FIFTH

ANNUAL COMMENCEMENT

WEDNESDAY AFTERNOON, MAY 24TH, 1916,

At Two o'clock

UNIVERSITY AUDITORIUM

PROGRAM

Overture, "Poet and Peasant".....Von Suppe
University Orchestra

Award of Prizes.

Conferring of Degrees.

Idyll, "The Mill in the Forest".....Eilenberg
University Orchestra

Valedictory .....Thomas Charles Boone, LL. B. '16

Address.....Lewis F. Byington, B. S. '84

March, "The Campus".....Mustol
University Orchestra.

DEGREES CONFERRED

Juris Doctor

ALBERT JOSEPH NEWLIN, B. S. '12, LL. B. '14

Bachelor of Laws

FRANK HOBART BLOOMINGDALE
THOMAS CHARLES BOONE (Cum maxima laude)
FLOYD MANNING BOTHWELL
ADOLPH BRIONES CANELO, JR. (Cum magna laude)
EMILE ORPHEUS COSCHINA
EDWARD BYRON FORD, A. B.
JAMES PETER FITZPATRICK, A. B. '15
MICHAEL EDWARD GRIFFITH, A. B. '98
(Cum magna laude)
CLINTON EMMETT HURD
HERBERT McDOWELL
LOUIS THOMAS MILBURN, A. B. '15
THOMAS JUSTIN RIORDAN, A. B. '12
LOUIS ROBERT SERPA
WILLIAM THOMAS SHIPSEY
FRANK ALLEN WILLEY

Bachelor of Arts

WILLIAM STEWART CANNON
DAVID BURRIS DRAPER
HENRY RAYMOND HALL
WILLIAM VAN CLIEF HERRIN
NICHOLAS JOSEPH MARTIN
GEORGE ALOYSIUS NICHOLSON
ENRIQUE TIANGCO Y VENEGAS
EDWIN MARTIN WALSH

Bachelor of Science

FRANCIS EMMET BROWNE
JAMES DANIEL COYLE, JR.
MILES ALOYSIUS FITZGERALD
JAMES JOSEPH HERLIHY
CHARLES DANIEL SOUTH, JR.
JOSEPH EUGENE TRABUCCO

Bachelor of Science in Civil Engineering

JOSEPH ANTHONY CHARGIN, JR.
WILLIAM JOSEPH CHRISTY (Cum laude)
ROY PAUL EMERSON
EDWARD HENRY McLAUGHLIN
IGNATIUS PATRICK O'NEIL

Bachelor of Science in Electrical Engineering

FRANCK LAINE

Bachelor of Science in Mechanical Engineering

IMMANUEL ALVIN OLIVER

Certificate in Law

MAX JOSEPH MICHEL

Commercial Certificate

BASIL HERMAN HOLTHOUSE

EXTRAORDINARY PRIZES

THE SENIOR NOBILI MEDAL.

An annual medal of the value of $60, founded in 1876, by Joseph A. Donahue, Esq., of San Francisco, in honor of the First President of Santa Clara, the Rev. John Nobili, S. J., to be given to "the student who shall be deemed first in morals, obedience, and application to study," was awarded to

JAMES DANIEL COYLE

Next in Merit:

WILLIAM JOSEPH CHRISTY

Distinguished:

George Aloysius Nicholson
Miles Aloysius Fitzgerald
Edward Henry McLaughlin
Edwin Richard Hennessey
Nicholas Joseph Martin
Clarence Frederick Noeltner,
Albert Aloysius Quill
Joseph Ramon Aurrecoechea
Jordan Lorenzo Martinelli

THE JUNIOR NOBILI MEDAL.

A medal of the value of $25, founded in 1898 by Michael H. Kelly, Esq., of San Francisco, to be given to the "student in the junior division who shall be deemed first in morals, obedience and application to study," was awarded to

CARLETON DYER MOORE

Next in Merit:

RICHARD HENRY EISERT

Distinguished:

Leo Peter Fitzgerald
James Robert Enright
Alvin Charles McCarthy
Henry Francis Doud
Herbert Joseph McChrystal
Thomas Albert Sparks
Hoit Charles Vicini
Bernard Joseph Baratono
Benjamin Tully Williams
Clarence William Scott

THE SILVER MEDAL FOR CONDUCT AND APPLICATION

To be given to the most distinguished of the
RESIDENT UNIVERSITY STUDENTS,
was awarded to

WILLIAM JOSEPH CHRISTY

Distinguished:

Enrique Tiangco y Venegas
James Joseph Herlihy
Roy Wilbur Fowler
Walter Samuel Wassum
Frederick Ehorn
Justin Fielding Gibson
Alexander Joseph Gardiner
Francis Berchmans Quinn
Raymond Covert Murphy
Peter John McNulty

THE SILVER MEDAL FOR CONDUCT AND APPLICATION

To be given to the most distinguished of the
RESIDENT HIGH SCHOOL STUDENTS,
was awarded to

RICHARD HENRY EISERT

Distinguished:

Kenneth Herman Berg
Francis Robert Covert
Joseph Charles Monga
Battista Louis Filippini
Louis James Trabucco
William Thomas Bassett
Gilbert Edward Haskamp
Aloysius Nicholas McNamara
Raymond Leo Smith
Richard William Dooly

THE SILVER MEDAL FOR CONDUCT AND APPLICATION

To be given to the most distinguished of the NON-RESIDENT UNIVERSITY STUDENTS, was awarded to

WILLIAM DIRVIN LOTZ

Distinguished:

Clarence Kelly Canelo
Joseph Lawrence Cabral
Joseph Anthony Chargin
Paul Edwin Dolen
Leo Louis Gairaud
Hilding Edmund Johnson
Elmer Darell Jensen
Franck Laine
Walter Maurice McElroy
Henry Vandervoorst Miller
John Charles Murphy
Elmer Walsh Maher
Leo Murtha Martin
Ronald Grant Stewart

THE SILVER MEDAL FOR CONDUCT AND APPLICATION

To be given to the most distinguished of the NON-RESIDENT HIGH SCHOOL STUDENTS, was awarded to

JOSEPH ARMAND ROBIDOUX

Distinguished:

John Franklin Brooke Jr.
James Patrick Bonetti
James Victor Clarke
Marshal Frederick Ducoing
David Joseph De Villiers
Thomas Joseph Ford
Otis Francis Forge
Harold James Flannery
Joseph Robert Fitzpatrick
Harry Joseph Gassett
Herman Basil Holthouse
Richard Ignatius McCarthy
Joseph Louis Morettini
Francis Brady Tinney

THE ARCHBISHOP'S MEDAL.

An annual medal of the value of $50, donated by His Grace, Most Rev. Edward J. Hanna, D. D., Archbishop of San Francisco, in memory of his illustrious predecessor, Most Rev. Patrick William Riordan, D. D., "for the best examination in Christian Doctrine," was awarded to

LEO LOUIS GAIRAUD

Distinguished:

Joseph Armand Robidoux
Peter Francis Morettini
William Kevin Casey
Francis Michael Conneally
Richard Ignatius McCarthy
Victor Emmanuel Cappa

THE RYLAND PRIZES.

Annual prizes of $50, $25 and $10, founded in 1897 by the Hon. Caius T. Ryland of San Jose, and increased by his son John Wallace Ryland, Esq., B. S. '77, LL.B. '12, to be given "to the student who may be deemed by the University most fit for the prize," have been set aside for the students who shall be judged to have distinguished themselves most in the Ryland Annual

Debate between the Philalethic Senate and the House of Philhistorians, and were awarded as follows:

First Prize, Fifty Dollars

THOMAS CHARLES BOONE

Second Prize, Fifteen Dollars

ADOLPH BRIONES CANELO JR.

Third Prize, Ten Dollars

JOSEPH RAMON AURRECOECHEA

Distinguished:

Gerald Morley Desmond William Stewart Cannon
Jordan Lorenzo Martinelli

THE DONOVAN PRIZES

Prizes donated by Colonel Joseph L. Donovan, U. S. Army, Ret., C. & M. E., of the Faculty of the College of Engineering, were offered and awarded as follows:

For the best Senior thesis in Civil Engineering, $25; awarded to

WILLIAM JOSEPH CHRISTY

Distinguished:

Joseph Anthony Chargin, Jr.

For the best Senior paper in Civil Engineering Design, $10; divided between

EDWARD HENRY McLAUGHLIN

and

IGNATIUS PATRICK O'NEIL

Distinguished:

Roy Paul Emerson

For the best Junior paper in Civil Engineering Design, $10; awarded to

WILLIAM DIRVIN LOTZ

Distinguished:

Edward Eugene Nino

For the best examination in Sophomore Engineering Mathematics, $20; awarded to

FREDERICK EHORN

Distinguished:

June Christian Volger Howard Sadoc Kelley

For the best examination in Freshman Engineering Mathematics, $10;

Divided between

JOSEPH LAWRENCE CABRAL

ALEXANDER JOSEPH GARDINER

THE ORELLA MEDAL.

A medal of the value of $25, founded by Dr. Firmin R. Orella, B. S. '89, to be given to the writer of the best paper on a scientific subject, was awarded to

FRANCIS BERCHMANS QUINN

Next in Merit:

DOMINIC FRANCIS DI FIORE

Distinguished:

Justin Fielding Gibson Walter Samuel Wassum
Leopold Pasqualino Di Fiore Roy Wilbur Fowler
Edward Alexander Amaral

THE BARCHI PRIZES.

Annual prizes of $15 and $10 founded by Joseph M. Durney, Esq., of San Francisco, in honor of the Rev. Caesar A. Barchi, S. J., were given this year for the best paper in the Mathematical Contest, and were awarded as follows:

First Prize, Fifteen Dollars

CHARLES MARSHALL FREDERICK DUCOING

Second Prize, Ten Dollars

Divided between

CARLETON DYER MOORE

JOSEPH ARMAND ROBIDOUX

Distinguished:

Clifford Raphael Saeltzer — Jordan Lorenzo Martinelli
Peter Francis Morettini — Richard Ignatius McCarthy
John Franklin Brooke, Jr. — Francis Xavier Cameron King
Frederick Ehorn

THE OWL MEDAL.

An annual prize of $25, founded by the directors of the former University Magazine, "The Owl", to be given to the winner of the Annual Elocution Contest in the University course, was awarded to

ELMER DARRELL JENSEN

Distinguished:

Robert Edward Tremaine — Nicholas Joseph Martin
Edwin Rea Harter — Joseph Ramon Aurrecoechea
Roy Paul Emerson

THE JUNIOR ELOCUTION MEDAL.

An annual prize of $25 for the winner of the Elocution Contest in the High School Department, was awarded to

THOMAS JOSEPH FORD

Distinguished:

Tirey Lafayette Ford, Jr.
James Victor Clarke
Hoit Charles Vicini
John de Busman Haley

THE DONOHOE MEDAL.

Annual prizes of $25, $15 and $10 to be awarded to the students who shall show the greatest progress in the study of Latin and Greek during the session, were set aside this year for the best Latin composition and were awarded as follows:

First Prize, Twenty-Five Dollars

RICHARD IGNATIUS McCARTHY

Second Prize, Fifteen Dollars

JOSEPH ARMAND ROBIDOUX

Third Prize, Ten Dollars

JOHN LORENZO MARTINELLI

Distinguished:

Benjamin Tully Williams
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Harry Joseph Gassett
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Victor Emmanuel Cappa

THE REDWOOD PRIZES.

Annual prizes of $15 and $10. founded in 1908 by the executive committee of "The Redwood," the Stu-

dent Body publication, were set aside this year for the best essay on a historical subject, and were awarded as follows:

First Prize, Fifteen Dollars
LEO LOUIS GAIRAUD

Second Prize, Ten Dollars
WILLIAM KEVIN CASEY

Distinguished:

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Dominic Francis Di Fiore
Victor Emmanuel Cappa
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Leo Francis Hickey

THE McCANN PRIZES.

Annual prizes of $15 and $10, founded in 1894 in memory of Daniel J. McCann, B. S. '84, were set aside this year for the best short story, and were awarded as follows:

First Prize, Fifteen Dollars
JOHN CHARLES MURPHY

Second Prize, Ten Dollars
FRANCIS BUCKLEY McGURRIN

Distinguished:

William Rhoderick Lindley
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Carleton Dyer Moore
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THE "CYC" PRIZE.

A prize of a complete set of "Cyc" (the Cyclopedia of Law and Procedure) with annotations to date, is

offered by the American Law Book Company to the student of the Institute of Law who shall take the highest scholarship honor for the period of his Senior year, including his oral examination.

THOMAS CHARLES BOONE, LL. B. '16

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Second Semester.

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John Vincent Morris.....Librarian
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Second Semester.

Albert Aloysius Quill.....Clerk
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William Scully Muldoon.....Librarian
Daniel James Ryan.....Sergeant-at-Arms

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REV. GEORGE GOLDEN FOX, S. J.
Faculty Director.

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Gerald Morley Desmond.....Business Manager 2nd Sem.
Clarence Kelly Canelo....Assistant Business Manager 1st Sem.
Clarence Kelly Canelo....Assistant Business Manager 2nd Sem.
Gerald Morley Desmond.....Circulating Manager 1st Sem.
Jordan Lorenzo Martinelli.....Circulating Manager 2nd Sem.

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Louis Thomas Milburn.....Athletics
Raymond W. Kearny.....Alumni Correspondent

Alexander T. Leonard, A. B., '10.....Alumni Correspondent
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The Editor of Reviews.

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Francis Robert Covert.....Assistant Stage Manager
Robert Harold Semerau.....Assistant Stage Manager
Manuel Alves Perry.....Assistant Stage Manager
Alvin Charles McCarthy.....Assistant Stage Manager
William Scully Muldoon.....Assistant Stage Manager
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Michael Joseph Kennedy.....Stage Carpenter
Michael O'Sullivan.....Scenic Artist
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First Semester.

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Second Semester.

Harry Francis Doud.....Vice-President
William Kevin Casey.....Secretary
Elisha Colt Dana.....Assistant Secretary
Arthur Coglan Devlin.....Treasurer
Albert Louis Bergna.....Sergeant-at-Arms

UNIVERSITY BAND AND ORCHESTRA.

SAMUEL JOSEPH MUSTOL, D. MUS.
(New York State Conservatory)
Director of Music.

Edward Alexander Amaral.....Cornet
Albert Louis Bergna.....Bass Drum
Victor Emmanuel Cappa.....Alto
William Stewart Cannon.....Drums and Traps
William Kevin Casey.....Violin
Joseph Anthony Chargin, Jr.....Clarinet
Frank Clemente De Lemos.....Cornet
David Joseph DeVilliers.....Clarinet
Donald Chase DeWitt.....Cornet
Demetrio Dias.....Trombone
Herman Charles Dieringer.....Violin and Alto
George Peter Ench.....Trombone
Leo Napoleon Ench.....Violin
Charles Leo Floto.....Cornet
Howard Sadoc Kelley.....Clarinet
George Trueman Letcher.....Alto
Daniel Joseph Lynch.....Violin
James Francis Mackey.....Violin
Jordan Lorenzo Martinelli.....Violin
John Donald McCarville.....Clarinet
Thomas Victor Joseph McNeil.....Violin
Edward James Mulholland, A. B.....Trombone
Albert Aloysius Quill.....Cornet
Francis Berchmans Quinn.....Baritone
Theodore William Ryan.....Bass

Harry Max Sick.....Cornet
Thomas Albert Sparks.....Cornet
William Ward Sullivan.....Violin and Alto
Robert Edward Tremaine.....Trombone
Joseph Eugene Trabucco.....String Bass and Baritone
June Christian Vogler.....Cornet
Horace Bertram Wilson.....Snare Drum
Jesse Leroy Woods.....Cornet

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Williams, Benjamin Tully	3 High	Res.	Oxnard
Williams, Richard John	2 High	Res.	Oxnard
Williams, Thomas Bishop	1 High	Res.	Oxnard
Wilson, Horace Bertram	Fresh. Let.	Res.	San Francisco
Winston, James Wallace	Soph. Let. Spec.	Res.	Duarte
de Ybarrando, Thomas Bartholomew	Sr. Let.	Res.	Los Angeles
Zepeda, Hector Ralph Died, Oct. 31, 1915	3 High Coml.	Res.	Tucson, Ariz.

INDEX

Page

Abbreviations 236
Absence from the University 28
Articles to be Brought by Resident Students.....34, 90
Absences, See Attendance.
Admission to Practice Law..... 166
Admission, See Credits for
Advanced Standing in Law..... 154
Alumni Association 224
Applicant, What Required of 34, 90
Arch. 1. Descriptive Geometry 101
2. Design 101
3. Design 102
4. Design 102
5. Design 102
6. Design 102
7. Freehand Drawing 102
8. History of Architecture 103
9. History of Architecture 103
10. Construction 103
11. Construction 103
12. Sanitation 104
13. Fireproofing 104
14. Interior Decoration 104
Architectural Engineering. See Arch. 1, etc.; also Engineering.
Associations. See Organizations.
Astronomical Observatory 142
Athletic Field 22
Attendance 36, 40, 162
Average, How Computed 38
Passing 37, 162
Required of Special Law Students..... 165
Bacteriology 180
Benefactions and Donations 232
Bequest to University, Proper Form of..... 18
Biology 178
Board of Trustees 4
Boards. See Committees.
Bookkeeping. See Commercial Department.
Books, Law, Deposit for. See Expenses..... 32
Buildings 17, 20
Calendar, University 6
Catholic Religion 28

Page

C. E. 1. Surveying 105
2. Surveying 106
3. Field Engineering 106
4. Field Engineering 106
5. Engineering in Field 106
6. Engineering in Field 107
7. Technical Mechanics 107
8. Technical Mechanics 108
9. Mechanics of Materials 108
10. Materials Testing Laboratory 108
11. Materials Testing Laboratory 109
12. Drawing 109
13. Drawing 109
14. Structural Design 109
15. Structural Design 110
16. Design 110
17. Thesis 111
18. Graphics 111
19. Graphics 111
20. Masonry 111
21. Hydraulics 113
22. Roof, Bridge and General Trusses 113
23. Roof, Bridge and General Trusses 114
24. Roads and Pavements 114
25. Sewers and Sanitation 115
26. Geodesy and Astronomy 115
27. Concrete and Reinforced Concrete 115
28. Tunneling 116
29. Irrigation 116
30. Railway Construction 117
31. Estimates and Specifications 118
32. Surveying 118

Certificate, Commercial 32, 37, 212
Certificate, Law 165
Certificate of Work Done in Other Schools..... 28
Chapel, Attendance at 28
Chemistry, General 68, 104
Organic 69, 177
Civics 199
Civil Engineering. See C. E. 1, etc.; also Engineering.
Classical Languages. See Latin and Greek.
College of Engineering 85
Philosophy and Letters 53
General Science 53
Law (Institute of Law) 143
Commencement in 1916 210

Page
Commercial Certificate Awarded in 1916..... 212
Commercial Department 183
When Student May Enter..... 200
Work That May be Taken in.... 200
Committees 24
Conditions Allowed on Entering 50, 90
Defined 38
Effect of Failing in Attempt to Remove..... 39
Incurred After Entrance 38, 92
Removal of 38
Two Examinations to Remove 39
Unremoved, Effect of on Status of Seniors.... 39
Contests, Dates of. See Calendar.
Courses of Instruction—
College of Engineering 87
Philosophy and Letters 55
Science 55
Commercial Department 183
High School Department 191
Institute of Law 143
Pre-Medical 175
School of Pedagogy 171
Court, Practice (or Moot)..... 151
Credits for Admission, Generally..... 49
College of Engineering 89
College of Philosophy and Letters..... 49
College of Science 49
Institute of Law 153
Pre-Medical 175
Credits in Engineering 89
Institute of Law..... 153
Philosophy and Letters, and General Science..49, 54
Debating in Institute of Law.....156, 157
Philalethic Senate 227
Philhistorians 228
Ryland Debate, 1916 206
Degree, Declaration of Candidacy for 40
Degrees Conferred in 1916..... 211
Engineering 48, 87
Law 47, 48, 164
Philosophy and Letters 47, 48
Science 47, 48, 55
Departments of the University 47
Devise to University, Proper Form of..... 18
Diplomas and Certificates 32, 48, 55, 164

Page
Dismissal, Dishonorable 29
Honorable 40
Distinctions. See Prizes.
Donations and Benefactions 232
Economics. See Political Economy.
Education, Courses in System of..... 171
Jesuit System of 19
E. E. 1. Electrical Machinery 119
2. Alternating Current Machinery 120
3. Alternating Currents 120
4. Telephony 120
5. Electric Railways 121
6. Design of Direct Current Machinery 121
7. Power Plant Design 121
8. Electrical Design 122
9. Electrical Engineering Laboratory 122
10. Electrical Engineering Laboratory 123
11. Electrical Engineering Laboratory 123
12. Electrical Engineering Laboratory 123
13. Technical Literature 124
14. Electricity 124
Election of Studies, Conditions of 40
See General Provisions for High School 200
Electrical Engineering. See Engineering.
Elocution Contest in 1916..... 204
Embryology 182
Employment for Students 34
Endowment 17
Eng. Math. 1. Algebra 124
2. Trigonometry 124
3. Analytic Geometry 125
4. Calculus 125
5. Calculus 125
6. Differential Equations 126
7. Method of Least Squares 126
Engineering, Architectural 88, 92, 93, 101
Civil 88, 92, 95, 105
College of 85
Electrical 88, 92, 98, 119
Field Work in 118
Mechanical 89, 92, 98, 100, 128
English in Engineering 126
College Courses 70
High School Courses 192, 194, 196, 198
Entertainments 203
Entrance Examinations 49

Page
Entrance, Penalty for Late 31
Requirements 49, 89, 153
Ethics 61, 139, 155
Examinations 36, 161
Charge for, Taken Out of Time..... 33
Entrance 49
Law 161
Oral 36, 162, 184
Executive Officers 4
Expenses 31
Expulsion, Causes for 29
Extraordinary Prizes 42
Winners of, in 1916 213
Faculty 9
Addresses of Non-Resident Members of..... 233
Committees of the 24
Failures 39
Fees and Expenses in all Departments 31
Field, Athletic 22
Field Work in Engineering 118
French 32, 80, 137, 200
Funds 17
General Provisions for High School..... 200
Regarding Standing and Scholarship 36
General Regulations 28
Geology 127
German 32, 82, 137
Grades of Scholarship 38, 91, 162
Graduation, Requirements for
College of Engineering 91
College of Philosophy and Letters 54, 55
College of Science 54, 55
Commercial Department 184
Institute of Law 36, 162
Greek, Courses in, College 75
High School 197, 200
Required for A. B..... 54
Grounds and Buildings 20
High School 191
Histology 180
History in College Courses 77
High School 193, 195, 197, 199
Holidays. See Calendar.
Honorable Dismissal, Certificate of 28
Honors and Distinctions. See Prizes.
(Ordinary Honors and Distinctions are Published Separately.)

Page
Hours at Which Instruction is Given..... 23
Institute of Law 143
Instruction. See Courses of
Laboratories, Chemical 21, 68, 104
Engineering 22, 108
Physical, for High School 21, 199
University 21
Pre-Medical .....177 and following
Wireless Telegraphy 21
Laboratory Fees. See Expenses.
Languages, Classical. See Latin, Greek.
Modern. See French, Spanish, German.
Latin in College 73
in High School 192, 193, 195, 197
Law, Courses of, in Detail 154
Courses Given in 1916-17 Summarized 160
Four Years Course in, Under Consideration..... 162
Oral Examinations in 162
Law School 143
Law in College of Engineering 128
Lectures Delivered in 1915-16..... 209
Legacy to University, Proper Form of..... 18
Legal Practice 151
Legal Title of University 18
Library 22
Literary Societies. See Debating.
Mass, Attendance at 28
Mathematics in Phil. & Let., Gen. Science 67
Engineering 124
High School 193, 195, 196, 198
M. E. 1. Mechanical Drawing 128
2. Descriptive Geometry 129
3. Kinematics 129
4. Machine Drawing 129
5. Machine Design 130
6. Machine Design 130
7. Machine Design 130
8. Power Plant Design 130
9. Review of Engineering Industries..... 131
9a. Review of Engineering Industries..... 131
10. Shopwork 131
11. Shopwork 131
12. Shopwork 132
13. Shopwork 132
14. Shopwork 132
15. Mechanical Engineering Laboratory 132

Page
16. Mechanical Engineering Laboratory 133
17. Mechanical Engineering Laboratory 133
18. Boilers 133
19. Steam and Gas Machinery 134
20. Thermodynamics 134
21. Internal Combustion Engines and Automobiles 134
22. Hydraulic Motors 135
23. Industrial Engineering 135
24. Industrial Engineering 136
25. Heating and Ventilation 136
26. Heating and Ventilation 136
27. Technical Literature 136
Mechanical Engineering. See M. E. 1, etc.; also Engineering.
Medals. See Prizes.
Medicine (Pre-Medical Course) 175
Modern Languages in Phil. & Let., and Science..... 80
Engineering 137
High School 200
Moot Courts 151, 167
Morals 28, 61, 80
Observatory 142
Offices 4, 9
Oral Examinations 36, 162, 184
Organizations 223
Pedagogy, School of.....49, 171
Philosophy 59, 138, 152, 155
Philosophy of Religion 78
Physics in Colleges of Phil. & Let., and Gen. Science.... 64
Engineering 139
High School 199, 200
Required in Engineering 200
Political Economy 62, 141
Practice Court 151, 157
Pre-Legal Course 155
Pre-Medical Course 175
Preparatory Dept. or High School 191
Prizes 42, 213
Prizes and Honors, Extraordinary 42, 213
Prize Winners of 1916 213
Promotions, Conditions of 37
Professional Schools,
College of Engineering 86
Institute of Law 143
School of Pedagogy 171
Pre-Medical 175

Page
Protestants 28
Psychology 60, 152
"Recommended" Students 40
"Redwood, The" 228
Rebates of Tuition, When Allowed 34
Register of Students, Complete 235
in Institute of Law..... 168
Registration, Card for 40
Fee for Late 31
Date of, for all Departments..... 6
Regular Students in Law 154
Regulations, General, for all Students 28
Religious Belief as Affecting Admission 28
Instruction 78, 193, 194, 196, 198
Worship, Attendance at 28
Requirements for Admission. See Credits for Admission.
Residence in the Institute of Law.....154, 163
Romance Languages. See French, Spanish.
Schedule for Engineering 92
High School 201
Institute of Law 160
Philosophy and Letters and Science..... 56
Scholarship and Standing 36
Scholarships 25, 45
School of Pedagogy 171
Schools of University 17, 47
Scientific Building 21
Self-Support, Opportunities of Students for..... 34
Semester, Defined 23
Sessions, Hours of Instruction.....6, 23, 152
Shorthand 189
Societies 223
Sociology 63
Sodalities 224
Spanish 83, 138
Special Students, Institute of Law..... 154
Student Body 231
Student Organizations 224
Students, Complete Register of..... 235
in Institute of Law..... 168
Regular in Law 154
Special in Law 154
Summary of Courses Given in Engineering 92
High School 192
Law 160
Philosophy, Letters & General Science..... 56

Page
Suspension of Students, Causes for..... 29
Telegraphy, Laboratory for Wireless 21
Theses, in General 47
Institute of Law 163
Philosophy, Monthly 41
Trial Practice 151, 167
Trustees 4
Tuition, Charges for 31
Rebate of, When Allowed 34
Typewriting 32, 189
Unit, Entrance Requirements, Defined..... 52
Colleges of Philosophy & Leters and General Science, Defined 55
College of Engineering, Defined 91
Institute of Law (Credit) Defined..... 162
University Events 203
Grounds 20
Buildings 20
History and Organizations 13
Organizations 223
Schools of 17, 48, 49
Theatre 20
Vacations 23, 28, 152
Prompt Return From, Required.....29, 91
Wills, Form of Bequest to University in..... 18
Work, Private, To be Done Out of Class..... 41

The 66th Session

Of the University of Santa Clara begins
on Wednesday,

August 16th, 1916

University of Santa Clara

Ordinary Honors

and

Distinctions

SANTA CLARA, CALIFORNIA

MAY, 1916

Ordinary Honors and Distinctions

It is customary at Santa Clara to encourage the students who have succeeded best in their classes by some public recognition of merit. During the school year the list of those who have distinguished themselves in their various classes is read publicly every month in the University Hall.

The following list of ordinary honors and distinctions comprises the names of those who have attained the highest average during the entire school year. First and Second Honors are awarded to the best two in such class. A distinction requires a yearly average of 85 per cent., or over; in the Institute of Law the average required is 90 per cent.

Decorations are awarded as follows:

One first honor.....a purple ribbon.
Two first honors.....two purple ribbons.
Three first honors.....a gold ribbon.
One second honor.....a red ribbon.
Two second honors.....a purple ribbon.

THIRD YEAR LAW.

Thomas Charles Boone—First Honors in Sales, Partnership, Equity, Mortgages, California Practice, Trusts, Realty.

Distinguished in Bills and Notes.

Floyd Manning Bothwell—Distinguished in Trusts.

Adolph Briones Canelo, Jr.—Second Honors in Sales, and Partnership.
Distinguished in Equity, California Practice, Bills and Notes, Realty, Trusts, and Mortgages.

Edward Byron Ford—Distinguished in Sales.

Michael Edward Griffith, A. B.—Second Honors in Equity, California Practice, Realty, Mortgages.
Distinguished in Sales, Partnership.

Clinton Emmett Hurd—Second Honors in Bills and Notes.
Distinguished in Sales.

Herbert McDowell—Distinguished in Sales, Mortgages.

Max Joseph Michel—Distinguished in Partnership.

Louis Thomas Milburn—Distinguished in Trusts.

Louis Robert Serpa—Second Honors in Realty.
Distinguished in Sales, Partnership, Bills and Notes, Mortgages.

William Thomas Shipsey—First Honors in Bills and Notes.
Distinguished in Partnership, California Practice, Realty.

Frank Allen Willey—First Honors in Partnership.
Second Honors in Sales, Trusts.
Distinguished in Equity, California Practice, Mortgages.

SECOND YEAR LAW.

Miller Atkinson—Distinguished in Mortgages, Realty.

Miles Aloysius Fitzgerald—First Honors in Mortgages, Bills and Notes, Corporations, Trusts.
Second Honors in Realty.
Distinguished in Equity.

Henry Raymond Hall—Second Honors in Bills and Notes.
Distinguished in Trusts.

James Joseph Herlihy—Distinguished in Bills and Notes.

William Van Clief Herrin—Distinguished in Bills and Notes, Trusts.

Harry Aloysius Anthony Houser—Second Honors in Trusts.

Nicholas Joseph Martin—Distinguished in Bills and Notes, Realty, Trusts.

Jacob Lester Miller—Distinguished in Mortgages, Realty, Trusts.

William Nelson Mullen—Distinguished in Realty.

George Aloysius Nicholson—First Honors in Realty.
Second Honors in Equity, Mortgages, Corporations.
Distinguished in Sales, Trusts.

Orvis Humphrey Speciale—Distinguished in Sales.

Audrey Philip Schmidt—Distinguished in Trusts.

FIRST YEAR LAW.

Joseph Ramon Aurrecoechea—Distinguished in Contracts.

Victor Chargin—Distinguished in Agency.

John Richard Connor—Distinguished in Common Law Pleading, Personality.

Leo Louis Gairaud—First Honors in Common Law Pleading, Torts.
Distinguished in Personality, Agency.

Thomas Edward Hickey—Distinguished in Contracts.

Elmer Darrell Jensen—Distinguished in Agency.

Elmer Walsh Maher—First Honors in Personalty, Bailments.
Second Honors in Agency, Torts.
Distinguished in Common Law Pleading, Contracts.

Clarence Frederick Noeltner—First Honors in Common Law Pleading.
Second Honors in Contracts.
Distinguished in Agency, Criminal Law and Procedure, Torts.

Theodore William Ryan—Distinguished in Agency, Contracts.

Ronald Grant Stewart—First Honors in Criminal Law and Procedure.
Distinguished in Agency.

Claude Bernard Sweezey—Distinguished in Personalty.

Audrey Philip Schmidt—First Honors in Corporations.
Second Honors in Personalty.
Distinguished in Sales, Equity, Torts.

Enrique Tiangco y Venegas—First Honors in Agency, Contracts.
Second Honors in Bailments, Criminal Law and Procedure.
Distinguished in Common Law Pleading, Personalty.

SENIOR LETTERS AND SCIENCE.

Honors and Distinctions are given in the following departments to those who maintain an average of 85 or more.

Thomas Charles Boone—First Honors in Philosophy of Religion, Natural Theology.
Second Honors in Ethics.

Francis Emmet Browne—Distinguished in Analytic Geometry.

James Daniel Coyle, Jr.—Second Honors in Embryology, Biology.

David Burris Draper—Distinguished in Biology.

Miles Aloysius Fitzgerald—Second Honors in Natural Theology.
Distinguished in Philosophy of Religion, Ethics.

Henry Raymond Hall—Distinguished in Philosophy of Religion, Ethics, Natural Theology.

Alfred Louis Kavanagh—Distinguished in Biology, Embryology.

Nicholas Joseph Martin—Distinguished in Natural Theology.

George Aloysius Nicholson—First Honors in Ethics, Natural Theology.
Second Honors in Philosophy of Religion.

Charles Daniel South, Jr.—Second Honors in Physics Laboratory.

Enrique Tiangco y Venegas—Second Honors in French.
Distinguished in Philosophy of Religion, Ethics, Natural Theology.

Edward Martin Walsh—Second Honors in German.
Distinguished in Embryology.

JUNIOR LETTERS AND SCIENCE.

Joseph Ramon Aurrecoechea—Distinguished in Logic.

Leo Louis Gairaud—Distinguished in Metaphysics, Philosophy of Religion.

Elmer Darrell Jensen—First Honors in Philosophy of Religion.
Second Honors in Logic.
Distinguished in Metaphysics.

Clarence Frederick Noeltner—Second Honors in Metaphysics.
Distinguished in Philosophy of Religion.

Ronald Grant Stewart—First Honors in Political Economy, Logic, Metaphysics.
Second Honors in Philosophy of Religion.

Audrey Philip Schmidt—First Honors in Logic.
Second Honors in Political Economy.

Claude Bernard Sweezey—Distinguished in Logic.

SOPHOMORE LETTERS AND SCIENCE.

Cyril Abbott Coyle—Distinguished in English Literature, Oratory and Religion.

Clarence Kelly Canelo—First Honors in Spanish.
Distinguished in Logic.

Gerald Morley Desmond—Distinguished in English Literature, English Composition and Oratory.

Paul Edwin Dolen—Distinguished in Oratory and Religion.

Edwin Rea Harter—First Honors in Latin Literature, and Latin Composition.
Second Honors in English Literature, Oratory and Spanish.

Distinguished in English Composition, Analytic Geometry, Physics Lecture and Elementary Law.

Edwin Richard Hennessy—Distinguished in Organic Chemistry Theory and Laboratory and English Literature.

Hilding Edmund Johnson—First Honors in Analytic Geometry.

Second Honors in French.

Distinguished in Religion, English Literature, English Composition, Oratory and Physics Lecture.

Elmer Walsh Maher—Distinguished in Religion and English Literature.

James Charles Martin—First Honors in Physics Laboratory.

Distinguished in History, Religion, English Literature, English Composition, Physics Lecture, French and Oratory.

Peter Blas Marinovich—Distinguished in Religion and English Literature.

John Vincent Morris—Distinguished in English Composition.

William Scully Muldoon—Second Honors in Analytic Geometry.

Distinguished in Oratory.

John Charles Murphy—First Honors in English Composition.

Second Honors in Latin Literature, and Latin Composition.

Distinguished in Oratory, Religion and English Literature.

Edward Lorigan Nicholson—Second Honors in English Composition.
Distinguished in Religion, English Literature and Oratory.

Frank Thomas O'Neill—Distinguished in English Literature, English Composition and Oratory.

Adrian Vere Prothero—First Honors in English Literature, Spanish and Elementary Law.
Second Honors in Religion.
Distinguished in Chemistry Theory, English Composition and Oratory.

Albert Aloysius Quill—First Honors in Analytic Geometry.
Second Honors in Latin Literature, Latin Composition and French.
Distinguished in Religion, English Literature, Oratory and Elementary Law.

Francis Berchmans Quinn—First Honors in Embryology, Biology, Organic Chemistry Theory, Organic Chemistry Laboratory and French.
Distinguished in Religion, English Literature, English Composition and Logic.

Daniel James Ryan—Second Honors in Elementary Law.
Distinguished in Religion, English Literature, English Composition and Oratory.

Rudolph John Scholtz—First Honors in Religion.
Distinguished in English Literature, English Composition, Oratory, Elementary Law and Physics Lecture.

Robert Edward Tremaine—First Honors in Oratory.
Distinguished in English Composition, English Literature.

James Wallace Winston—Distinguished in Religion, English Literature and English Composition.

Tobias Joseph Bricca—Distinguished in English Literature and Oratory.

FRESHMAN LETTERS AND SCIENCE.

Thomas Ryan Block—Distinguished in English Composition, History and Typewriting.

Frank Adolph Camarillo—Distinguished in Spherical Trigonometry and Spanish.

Donald Chase DeWitt—Second Honors in Spherical Trigonometry.

Maurice Patrick Codd—First Honors in Interpretation.
Distinguished in English Composition and Religion.

Demetrio Diaz—Distinguished in History.

Daniel Osmond Donovan—First Honors in Religion.

Arthur Aloysius Falvey—Second Honors in Greek Literature.
Distinguished in English Literature and Greek Composition.

William Tracey Gaffey—Distinguished in Civics, and English Composition.

Brian Eugene Gagan—Second Honors in French.
Distinguished in English Literature, English Composition, History and Shorthand.

Justin Fielding Gibson—Distinguished in English Composition, History, Chemistry, Theory and Latin Literature.

Richard Craig Howard—First Honors in English Literature.

Second Honors in History.

Distinguished in Spherical Trigonometry, Latin Literature, Latin Composition and French.

Norbert Joseph Korte—First Honors in History.

Second Honors in Advanced Algebra, English Literature, Latin Literature and Greek Composition.

Distinguished in English Composition, Spherical Trigonometry and Greek Literature.

William Rhoderick Lindley—Distinguished in History.

Jordan Lorenzo Martinelli—First Honors in Advanced Algebra, Spherical Trigonometry, Latin Literature and Latin Composition.

Distinguished in Religion, English Literature, English Composition, Interpretation, Greek Composition and Greek Literature.

Francis Buckley McGurrin—First Honors in English Composition and French.

Distinguished in Religion, English Literature and History.

Raymond Covert Murphy—Second Honors in English Composition.

Distinguished in English Literature and History.

William Ward Sullivan—First Honors in Greek Literature and Greek Composition.

Second Honors in Religion and Interpretation.

Distinguished in English Literature, English Composition, History, Advanced Algebra, Spherical Trigonometry, Chemistry Theory, Latin Composition and Latin Literature.

Horace Bertram Wilson—Distinguished in Interpretation and History.

SENIOR ENGINEERING.

Joseph Anthony Chargin, Jr.—Distinguished in Philosophy and Irrigation.

William Joseph Christy—First Honors in Tunnels, Roads and Pavements, Irrigation, Roofs and Bridges, Geodesy and Astronomy.

Second Honors in Sanitation and Sewers, Reinforced Concrete, Philosophy, Design, Railway Construction and Field Work.

Distinguished—Estimates and Specifications.

Roy Paul Emerson—Distinguished in Sanitation and Sewers, Estimates and Specifications and Philosophy.

Franck Laine—First Honors in Thesis, Internal Combustion Engines and Philosophy.

Second Honors in Industrial Engineering and Power Plant Design.

Distinguished in Estimates and Specifications.

Edward Henry McLaughlin—First Honors in Sanitation and Sewers, Reinforced Concrete, Design and Field Work.

Second Honors in Tunnels, Roofs and Bridges, Geodesy and Astronomy and Irrigation.

Distinguished in Railway Construction, Estimates and Specifications and Philosophy.

Immanuel Alvin Oliver—First Honors in Industrial Engineering and Power Plant Design.
Second Honors in Internal Combustion Engines and Thesis.
Distinguished in Philosophy.

Ignatius Patrick O'Neil—Second Honors in Estimates and Specifications.
Distinguished in Sewers and Sanitation, Design, Irrigation and Philosophy.

JUNIOR ENGINEERING.

Eugene Henry Charles—Second Honors in Electrical Measurements and Machine Design.
Distinguished in Differential Equations and Boilers.

Thomas Richard Daniel Fox—First Honors in Electrical Measurements, Foundry, Boilers, Machine Design, M. E. Laboratory, Philosophy, Direct Current Machinery and Field Work.
Second Honors in Differential Equations and Pattern Making.

Marshall Thomas Garlinger, Jr.—First Honors in Pattern Making.
Second Honors in M. E. Laboratory, Boilers and Direct Current Machinery.
Distinguished in Electrical Measurements.

Henry Augustine Harkins—Distinguished in Electrical Measurements and Philosophy.

William Dirvin Lotz—First Honors in Differential Equations, Material Testing, Mechanics of Materials, Structural Design, Railway Construc-

tion, Estimates and Specifications, Masonry, Graphics, Special Engineering, Mathematics, Field Work and Hydraulics.

Second Honors in Philosophy.

Eugene Edward Nino—Second Honors in Masonry, Material Testing, Structural Design, Field Work and Graphics.

Distinguished in Differential Equations, Estimates and Specifications and Philosophy.

SOPHOMORE ENGINEERING.

James Edward Clarke—Second Honors in Mechanical Laboratory.

Distinguished in Forging, Wood Turning, Machine Drawing, English Precepts, Physics Lecture, Calculus and English Composition.

Elmer Simon Dreischmeyer—First Honors in Mechanical Laboratory, Kinematics, Woodwork and Machine Drawing.

Second Honors in English Composition, Wood Turning, Physics Lecture and Physics Laboratory.

Distinguished in Forging, English Precepts and Calculus.

Frederick Francis Ehorn—First Honors in Geology, Mineralogy, Topographical Drawing, Physics Lecture, Calculus, Surveying and Technical Mechanics.

George Peter Ench—Second Honors in Geology, Mineralogy, Organic Chemistry Theory and Laboratory.

Distinguished in English Precepts, English Composition, Physics Lecture and Physics Laboratory.

Santiago y Concepcion Escobar—First Honors in Forging and Wood Turning.
Second Honors in Woodwork.
Distinguished in Physics Laboratory.

Howard Sadoc Kelly—First Honors in English Precepts, English Composition, Calculus and Wood Turning.
Second Honors in Forging and Machine Drawing.
Distinguished in Physics Lecture.

Joaquin Matus Lalinde—Distinguished in Machine Drawing and Wood Turning.

Walter Maurice McElroy—First Honors in Forging.
Second Honors in English Precepts and Wood Turning.
Distinguished in Machine Drawing and English Composition.

Peter John McNulty—Distinguished in English Composition and Wood Turning.

June Christian Vogler—Second Honors in Forging.
Distinguished in English Precepts, Wood Turning and Physics Lecture.

Anthony Francis Casey—Second Honors in Surveying.
Distinguished in Geology and Mineralogy.

FRESHMAN ENGINEERING.

Joseph Lawrence Cabral—First Honors in Chemistry Theory, Algebra, Trigonometry and Analytic Geometry.

Second Honors in English Precepts.
Distinguished in Chemistry Laboratory, Review of Engineering Industries and Mechanical Drawing.

Leopold Pasqualino DiFiore—Second Honors in Spanish.
Distinguished in Review of Engineering Industries.

Roy Wilbur Fowler—Distinguished in English Composition.

Alexander Joseph Gardiner—Distinguished in Descriptive Geometry.

Henry Vandervorst Miller—First Honors in English Composition and Mechanical Drawing.
Second Honors in Chemistry Laboratory, Review of Engineering Industries.

Leo Murtha Martin—First Honors in Chemistry Laboratory, Review of Engineering Industries, Mechanical Drawing and Descriptive Geometry.
Second Honors in Chemistry Theory, Algebra and Trigonometry.
Distinguished in Chemistry Laboratory and English Composition.

Howard Francis Nulk—First Honors in Chemistry Laboratory.
Distinguished in Chemistry Theory, English Precepts, Mechanical Drawing and Descriptive Geometry.

Manuel Julian Selaya—First Honors in Mechanical Drawing and German.
Distinguished in English Composition, English Precepts and Descriptive Geometry.

William Keith Volkers—Distinguished in Mechanical Drawing.

Walter Samuel Wassum—Second Honors in English Composition.

Distinguished in Chemistry Theory, Chemistry Laboratory, English Precepts and Mechanical Drawing.

FOURTH YEAR HIGH SCHOOL.

John Joseph Briare—Distinguished in Plane Trigonometry.

John Malcolm Barrett—Second Honors in Latin Literature.

Distinguished in French and Latin Composition.

William Kevin Casey—Distinguished in English Composition, English Literature and Spanish.

Francis Michael Conneally—Distinguished in Physics Lecture and Physics Laboratory.

James Victor Clarke—Distinguished in History of England and Elocution.

Carroll John Crowley—Distinguished in Religion.

Arthur Coglan Devlin—Second Honors in Latin Composition and Latin Literature.

Distinguished in English Precepts, English Composition, Civics and Religion.

Harry Francs Doud—Distinguished in English Composition, Religion and Civics.

Dominic Francis Di Fiore—First Honors in Physics Laboratory.

James Robert Enright—First Honors in English Composition and Plane Trigonometry.

Second Honors in English Literature, Religion, Physics Lecture and Latin Composition.

Distinguished in Solid Geometry and Latin Literature.

Leo Peter Thomas FitzGerald—Distinguished in French and Physics Lecture.

Thomas Joseph Ford—First Honors in Elocution.

Distinguished in Religion, Latin Author, Solid Geometry and Physics Laboratory.

Tirey Lafayette Ford, Jr.—Distinguished in Solid Geometry.

Harold James Flannery—Distinguished in Solid Geometry, Plane Trigonometry and Physics Lecture.

Roy James Loofbourrow—Second Honors in Physics Laboratory.

Peter Francis Morettini—First Honors in Special Latin Literature and Composition, Physics Lecture and Solid Geometry.

Second Honors in Greek Literature and Composition.

Distinguished in Religion, Civics and Plane Trigonometry.

Herbert Joseph McChrystal—Distinguished in Algebra.

Joseph Armond Robidoux—First Honors in Latin Composition, Latin Literature, Religion, English Literature, United States History, Civics, Greek Literature and Composition, Solid Geometry, Plane Trigonometry and Physics Lecture.

Second Honors in English Composition and Elocution.

David Vincent Tuttle—Distinguished in Latin Literature, English Precepts and Spanish.

Hoit Charles Vicini—Distinguished in History of England and Elocution.

THIRD YEAR HIGH SCHOOL.

Casimir Andrew Antonioli—Distinguished in English Literature and Composition and Religion.

Bernard Joseph Baratono—First Honors in Elocution.
Second Honors in History of England.
Distinguished in English Literature and English Composition.

Kenneth Herman Berg—Distinguished in History of England and Elocution.

John Franklin Brooke—First Honors in Plane Geometry.
Second Honors in Greek Literature and Composition.
Distinguished in English Literature, Religion, Elocution and Latin Literature.

Mario Charles Corsiglia—Distinguished in Religion and Latin Composition.

David Joseph de Villiers—Second Honors in English Composition.
Distinguished in Religion and English Literature.

Richard Henry Eisert—Distinguished in English Literature, Religion and Elocution.

Joseph Robert Fitzpatrick—First Honors in English Composition and History of England.

Second Honors in English Literature.
Distinguished in Religion, Latin Literature and Composition.

Joseph Aloysius Jacobs—Distinguished in Religion.

Francis Cameron King—Distinguished in English Literature, English Composition, Religion, Elocution and Algebra.

George Walter Heier—Second Honors in Algebra.

Joseph Charles Monga—Distinguished in English Literature.

Carlton Dyer Moore—First Honors in English Literature.
Second Honors in Plane Geometry.
Distinguished in English Composition, History of England and French.

Aloysius Cornelius McCarthy—Distinguished in Latin Composition and Religion.

Richard Ignatius McCarthy—First Honors in Religion, Latin Composition, Latin Literature, Greek and Plane Geometry.
Distinguished in English Composition and Literature.

Thomas Alexander Sperry—Second Honors in Elocution.
Distinguished in Religion, English Composition and English Literature.

Abel Joseph Terrazas—Distinguished in Latin Composition.

Martin Simon Walsh—Distinguished in English Literature, English Composition, History of England, Religion and Elocution.

Benjamin Tully Williams—Second Honors in Latin Literature, Latin Composition and Religion.
Distinguished in English Literature and Composition, History of England and Elocution.

SECOND YEAR HIGH SCHOOL, DIVISION A.

John William Douglas Chisholm—Second Honors in Latin Literature and Latin Composition.
Distinguished in Religion and History.

Charles Joseph Caramella—Distinguished in Religion.

Paul Warren Carroll—Distinguished in Religion, English Precepts and English Composition.

James Louis Demartini—Distinguished in Religion.

Charles Marshall Frederick Ducoing—First Honors in Algebra, Elocution, French, Religion, English Precepts, Latin Literature and Composition.
Second Honors in English Composition.
Distinguished in History.

Battista Louis Filippini—First Honors in Algebra.

Harry Joseph Gassett—First Honors in English Composition and History.
Second Honors in Algebra, Religion, English Precepts, Latin Composition and Literature.
Distinguished in Elocution.

Joseph Louis Morettini—Second Honors in French.

Clarence Raphael Sullivan—Second Honors in Elocution.
Distinguished in Algebra, Religion, English Precepts, Latin Composition and Literature.

Cletus Stephen Sullivan—Second Honors in History.
Distinguished in Algebra, Religion, English Precepts, and Latin Literature and Composition.

Louis Joseph Trabucco—Distinguished in Religion.

SECOND YEAR HIGH SCHOOL, DIVISION B.

Francis Da Rosa—Second Honors in English Composition and Elocution.

Edward Martin Fellows—First Honors in Elocution.
Distinguished in English Literature.

Leo Francis Hickey—Distinguished in English Composition.

Edwin Austin Heafey—First Honors in English Literature and Religion.

Martin Murtha Murphy—First Honors in English Composition, Latin Literature and Composition.
Second Honors in English Literature.
Distinguished in Religion.

Richard Anthony O'Connor—Distinguished in Elocution.

Clarence William Scott—Distinguished in History.

Richard John Williams—Second Honors in Religion, Latin Literature and Composition.
Distinguished in English Literature and Composition.

FIRST YEAR HIGH SCHOOL, DIVISION A.

James Frank Bruno, Jr.—First Honors in Latin Literature and Composition.
Second Honors in English Composition and Precepts.
Distinguished in Religion.

Victor Emmanuel Cappa—First Honors in English Precepts and Ancient History.
Second Honors in Religion and Elocution.
Distinguished in English Composition, Latin Literature and Composition.

Roy Frank Costa—Distinguished in English Precepts and Elocution.

Aloysius Nicholas McNamara—Distinguished in Religion and Elocution.

Francis Aloysius Riordan—First Honors in Religion and Elocution.
Distinguished in English Precepts and Composition.

Edward Lindtner Sullivan—First Honors in English Composition.

FIRST YEAR HIGH SCHOOL, DIVISION B.

James Burke Curley—Distinguished in English Literature and Composition, Latin Composition and Literature, Religion and History.

Richard William Dooly—First Honors in English Literature and Composition and Elocution.
Second Honors in Religion and History.
Distinguished in Algebra, Latin Composition and Literature.

Joseph Edward Dyer—Distinguished in Elocution.

Otis Francis Forge—First Honors in English Composition, Religion, Latin Literature and Composition.
Second Honors in English Literature and History.
Distinguished in Algebra.

John Green Hiller—Second Honors in Elocution, English Composition and Latin Composition.
Distinguished in Algebra, English Literature, Religion, Latin Literature and History.

Clifford Raphael Saeltzer—First Honors in Algebra.
Distinguished in English Literature and Composition, Elocution, Latin Literature and Composition, and History.

Francis Brady Tinney—Second Honors in Algebra and Latin Literature.
Distinguished in English Literature and Composition, Elocution, Religion, Latin Composition and History.

Jesse Leroy Woods—Distinguished in Religion.

COMMERCIAL DEPARTMENT.

Columbus Samuel Acquistapace—Second Honors in Shorthand and Typewriting.
Distinguished in Banking.

Casimir Andrew Antonioli—First Honors in Office Practice.
Second Honors in Commercial Law and Arithmetic.
Distinguished in Commission Office.

Albert Andrew Azevedo—Distinguished in Business Practice.

Roy Emmet Bliss—Second Honors in Business Practice.

Bryan Taylor Byrnes—Distinguished in Business Spelling.

Carroll Joseph Crowley—Second Honors in Commercial Arithmetic.
Distinguished in Shorthand.

David Joseph De Villiers—First Honors in Penmanship and Bookkeeping.
Second Honors in Arithmetic and Shorthand.
Distinguished in Office Practice.

Herman Joseph Fitzpatrick—First Honors in Business Practice.
Distinguished in Billing and Tabulating.

Gilbert Edward Haskamp—Second Honors in Typewriting.

George Walter Heier—First Honors in Cost Accounting.
Second Honors in Auditing and Banking.
Distinguished in Commercial Law.

Joseph Roller Hewitt—Distinguished in Office Practice.

Basil Herman Holthouse—First Honors in Commercial Law, Auditing and Banking and Typewriting.
Second Honors in Real Estate and Insurance Accounting.
Distinguished in Billing Machine and Adding Machine.

Josiah James Jackson—Second Honors in Letter Writing.
Distinguished in Commercial English.

Joseph Alyosius Jacobs—Second Honors in Commercial English.
Distinguished in Penmanship.

John Harold Keefe—Distinguished in Business Practice and Business Spelling.

William Burton Larkins—Distinguished in Bookkeeping.

George Trueman Letcher—Distinguished in Commercial Arithmetic.

Joseph Francis Mariante—Distinguished in Business Practice.

Richard Henry Mehlhof—Second Honors in Bookkeeping.

Distinguished in Business Practice.

Horace Wall Maggetti—Distinguished in Business Practice.

Joseph Charles Monga—First Honors in Business Practice.

Distinguished in Commercial Arithmetic, Commercial English and Penmanship.

Peter Cyril O'Hare—Distinguished in Commercial Law.

Oscar Bartholomew O'Connor—Second Honors in Business Practice.

Distinguished in Letter Writing and Penmanship.

Henry Joseph Preciado—Second Honors in Business Spelling.

Distinguished in Commercial Arithmetic and Letter Writing.

John Thomas Pye—Distinguished in Commercial Arithmetic.

Raymond Leo Smith—Distinguished in Business Practice.

Jeremiah Joseph Saper—Distinguished in Business Spelling.

Leo Joseph Taforo—First Honors in Commercial English and Shorthand.
Second Honors in Office Practice.

Herman Sebastian Vath—Distinguished in Arithmetic, Railroad Accounting and Typewriting.